

PROPOSED SITE IMPROVEMENT PLANS

for

Assessors Map 55 Lot 94

88 Worcester Street

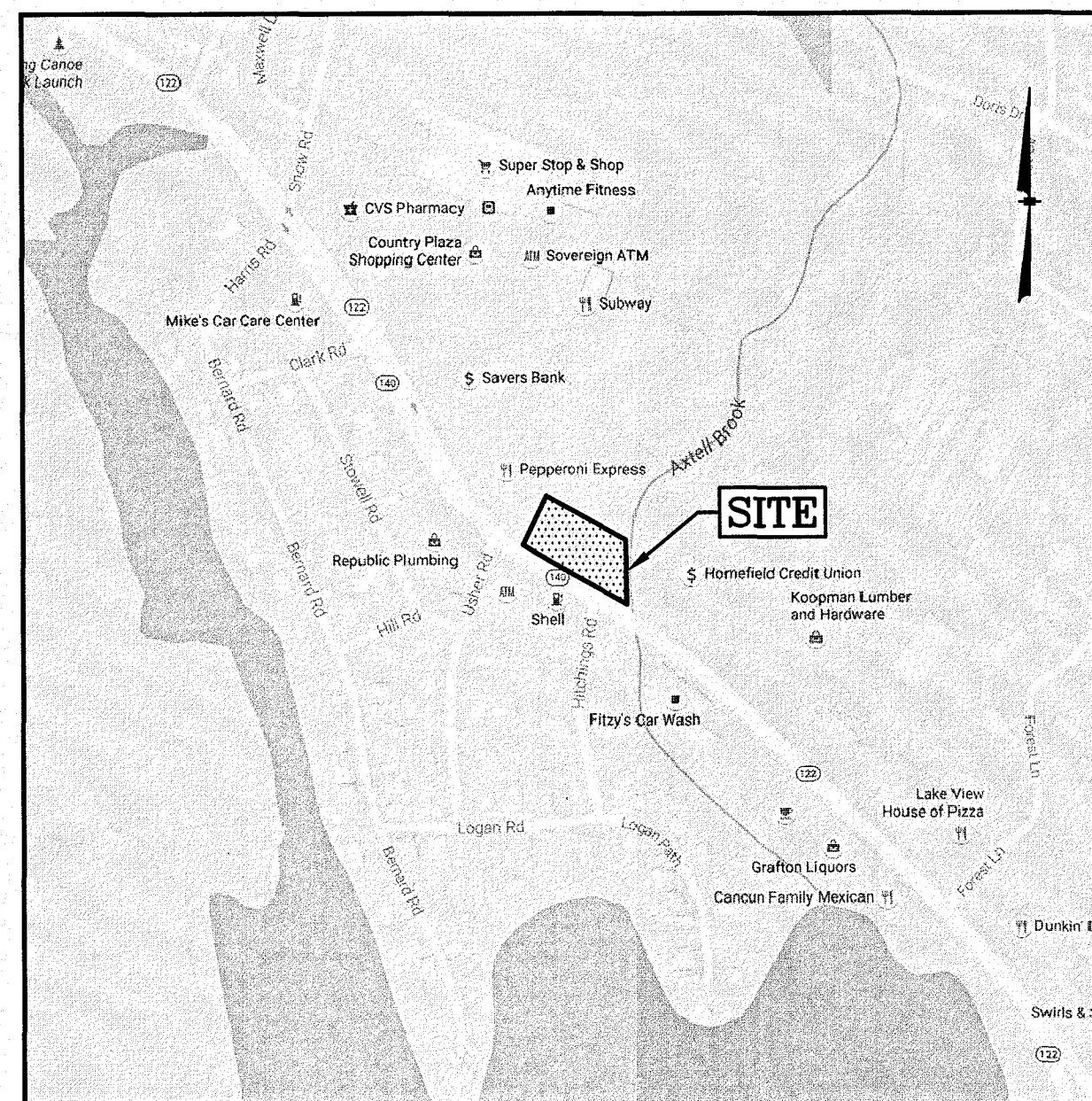
Grafton, Massachusetts

Prepared for:

Petrogas Group New England, Inc.

168 North Main Street


Andover, Massachusetts 01810



LOCUS PLAN
NOT TO SCALE

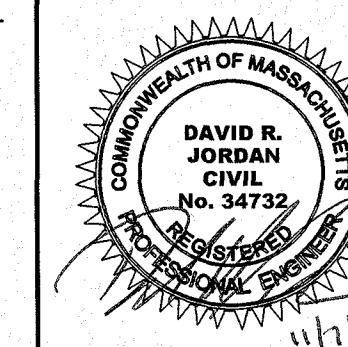
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- 2 OF 2. BUILDING ELEVATIONS (A102)
- 1 OF 1. RETAIL FUEL CANOPY ELEVATIONS

NO.	DESCRIPTION	BY	DATE
REVISIONS			
TITLE SHEET			
ASSESSORS MAP 55 LOT 94 88 WORCESTER STREET GRAFTON, MASSACHUSETTS PREPARED FOR: PETROGAS GROUP NEW ENGLAND, INC. 168 NORTH MAIN STREET ANDOVER, MASSACHUSETTS 01810			
 44 Stiles Road, Suite One Salem, New Hampshire 03079 (603) 893-0720 ENGINEERS • PLANNERS • SURVEYORS www.mhfdesign.com			
SCALE: NTS	DATE: NOVEMBER 7, 2017	DRAWING NO. 4088CVR.DWG	
DRAWN BY: SJB	CHECKED BY: DRJ	PROJECT NO. 408816	SHEET NO. 1 OF 10


APPROVED BY THE GRAFTON, MA PLANNING BOARD ON: _____

CERTIFIED BY: _____





GRAPHIC SCALE



(NOT TO SCALE)

- 1) ZONE: COMMUNITY BUSINESS (CB) DISTRICT
MIN. LOT SIZE: 40,000 Sq.Ft.
MIN. LOT FRONTAGE: 140 Ft.
SETBACKS:
FRONT 40 Ft.
SIDE 15 Ft.
REAR 15 Ft.
REFER TO THE TOWN OF GRAFTON ZONING ORDINANCE FOR VERIFICATION, ADDITIONAL RESTRICTIONS AND PERMITTED USES.
- 2) LOCATION OF UNDERGROUND UTILITIES IS APPROXIMATE ONLY. ADDITIONAL UNDERGROUND UTILITIES OTHER THAN THOSE SHOWN MAY BE ENCOUNTERED.
- 3) ELEVATIONS SHOWN HEREON ARE BASED ON NAVD88 PER GPS OBSERVATIONS PERFORMED BY THIS OFFICE ON MAY 17, 2017. CURB ELEVATIONS SHOWN ARE AT THE "TOE" OF CURB. CURBS ARE 0.50'± HIGH.
- 4) HORIZONTAL DATUM IS BASED ON NAD83 PER GPS OBSERVATIONS PERFORMED BY THIS OFFICE ON MAY 17, 2017.
- 5) A PORTION OF MAP 55 LOT 94 IS LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA (100 YEAR FLOOD) WITH A BASE FLOOD ELEVATION OF 307.1 (NAVD88) PER FLOOD INSURANCE RATE MAP NUMBER 25027C0829E WITH AN EFFECTIVE DATE OF JULY 4, 2011 AND THE FLOOD INSURANCE STUDY OF WORCESTER COUNTY REVISED JULY 16, 2014 (FLOOD PROFILE 10P).
- 6) SEE BOOK 16733 PAGE 390 FOR VARIANCE GRANTED TO ALLOW THE CONSTRUCTION OF A CANOPY.
- 7) SEE BOOK 10029 PAGE 37 FOR VARIANCE GRANTING THE CONSTRUCTION OF A SIGN WHOSE DIMENSIONS ARE 8'-2-1/2" WIDE X 3'-7" HIGH TO BE ERRECTED AND CHANGED.

- 1) I CERTIFY THAT THIS SURVEY PLAN SHOWS THE PROPERTY LINES THAT ARE THE LINES OF EXISTING OWNERSHIPS AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE WAYS ALREADY ESTABLISHED, THAT NO NEW LINES FOR DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.
- 2) I CERTIFY THAT THIS SURVEY AND PLAN CONFORMS TO THE ETHICAL, PROCEDURAL AND TECHNICAL STANDARDS FOR THE PRACTICE OF LAND SURVEYING IN THE COMMONWEALTH OF MASSACHUSETTS.
- 3) I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTER OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

11/7/17
DATE



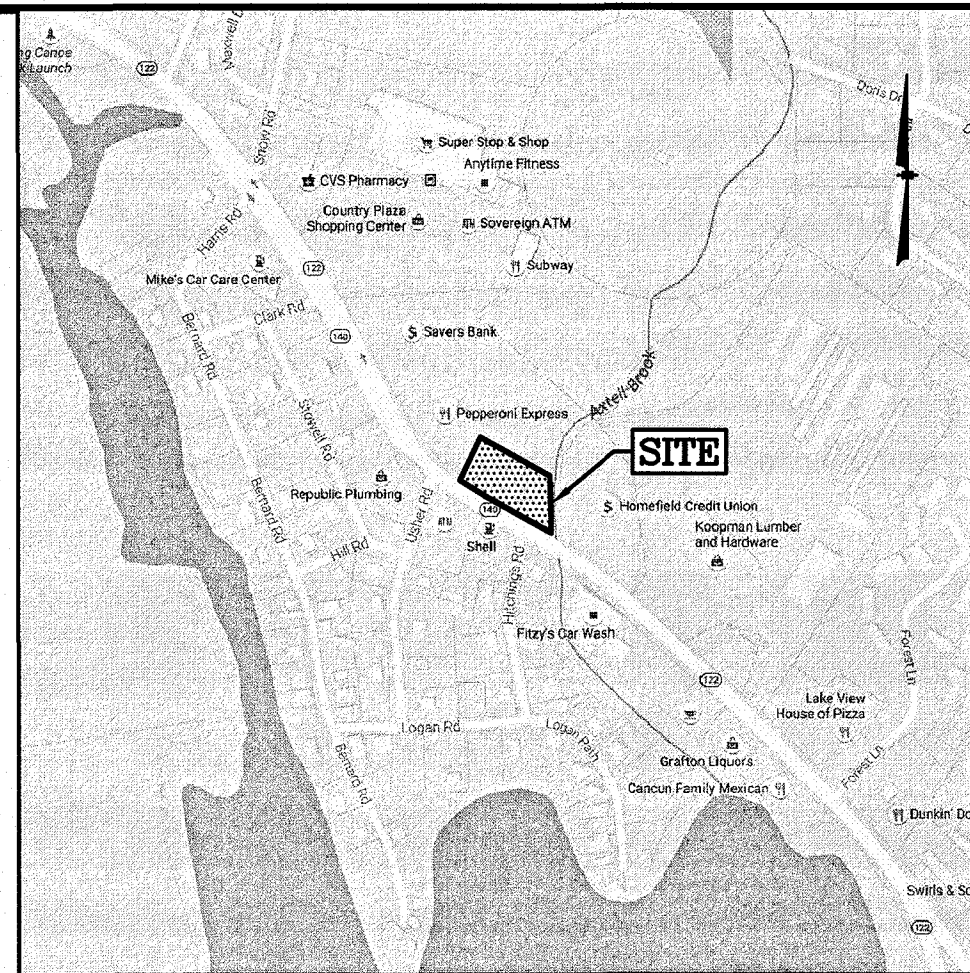
MHF Design Consultants, Inc.

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SCALE: 1"=20'	DATE: NOVEMBER 7, 2017		DRAWING NO. 408BTS.DWG
DRAWN BY:	CHECKED BY:	PROJECT NO.	SHEET NO.
JAC	DRJ	408816	2 OF 10

SEE EROSION & SEDIMENT CONTROL PLAN FOR LOCATION OF EROSION CONTROL DEVICES. SEE LANDSCAPE PLAN FOR LIMITS OF CLEARING. WORK WITHIN THE 25' NO-DISTURB WETLANDS BUFFER SHALL BE LIMITED TO THE MINIMUM DISTURBANCE REQUIRED TO COMPLETE THE PROPOSED SITE IMPROVEMENTS.

EXISTING MONITORING WELLS MW-4, MW-12 & SVP-1, (AS IDENTIFIED ON "FIGURE 2 SITE PLAN"; 90 WORCESTER STREET, NORTH GRAFTON, MA; PREPARED BY ENVIRONMENTAL CONSULTING AND MANAGEMENT SERVICES) ARE TO REMAIN. ALL OTHER MONITORING WELLS ARE TO BE REMOVED/ABANDONED IN ACCORDANCE WITH STATE & FEDERAL REGULATIONS. COORDINATE WITH PROPERTY OWNER'S REGISTERED PROFESSIONAL.




LOCATION MAP
(NOT TO SCALE)

NOTES:

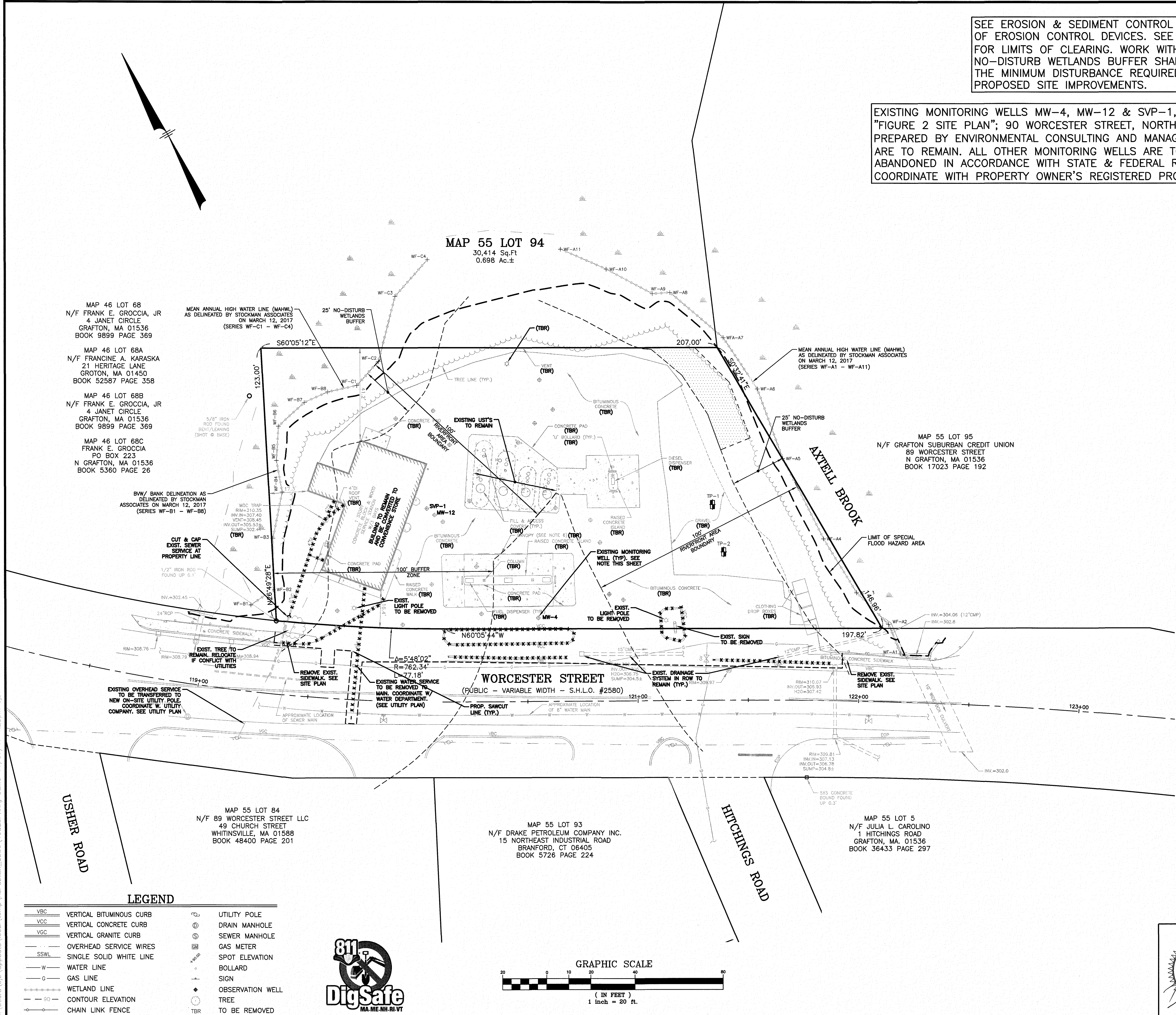
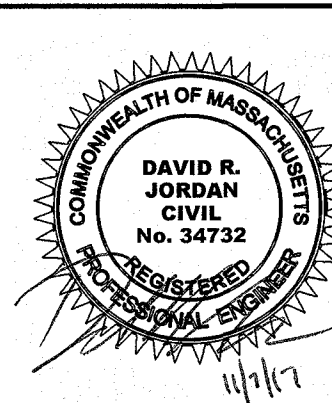
- 1) A DEMOLITION PERMIT MUST BE OBTAINED FROM THE TOWN OF GRAFTON PRIOR TO COMMENCEMENT OF WORK. ALL EXISTING UTILITY DISCONNECTIONS MUST BE COORDINATED WITH RESPECTIVE UTILITY COMPANIES.
- 2) ALL DEMOLITION ACTIVITIES ARE TO BE PERFORMED IN STRICT ADHERENCE TO ALL FEDERAL, STATE AND LOCAL REGULATIONS. CONTRACTOR TO INSTALL EROSION CONTROL DEVICES IN ACCORDANCE WITH GRADING & DRAINAGE PLAN PRIOR TO BEGINNING DEMOLITION ACTIVITIES.
- 3) PROCEED WITH DEMOLITION IN A SYSTEMATIC MANNER, FROM THE TOP OF THE STRUCTURE(S) TO THE GROUND.
- 4) DEMOLISH CONCRETE IN ALL SECTIONS.
- 5) BREAK UP CONCRETE SLABS-ON-GRADE, UNLESS OTHERWISE DIRECTED BY THE CONSTRUCTION MANAGER.
- 6) CONDUCT ALL DEMOLITION OPERATIONS IN A MANNER THAT WILL PREVENT INJURY, DAMAGE TO STRUCTURES, ADJACENT BUILDINGS AND ALL PERSONS.
- 7) REFRAIN FROM USING EXPLOSIVES WITHOUT PRIOR WRITTEN CONSENT OF THE DEVELOPER AND APPLICABLE GOVERNMENTAL AUTHORITIES.
- 8) CONDUCT DEMOLITION SERVICES IN SUCH A MANNER TO INSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS AND OTHER ADJACENT FACILITIES. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS OR OTHER OCCUPIED FACILITIES WITHOUT PRIOR WRITTEN PERMISSION OF THE DEVELOPER AND APPLICABLE GOVERNMENTAL AUTHORITIES. PROVIDE ALTERNATIVE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS IF REQUIRED BY APPLICABLE GOVERNMENTAL REGULATIONS.
- 9) USE WATERING, TEMPORARY ENCLOSURES AND OTHER SUITABLE METHODS, AS NECESSARY TO LIMIT THE AMOUNT OF DUST AND DIRT RISING AND SCATTERING IN THE AIR. CLEAN ADJACENT STRUCTURE AND IMPROVEMENTS OF ALL DUST AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS. RETURN ALL ADJACENT AREAS TO THE CONDITIONS EXISTING PRIOR TO THE START OF WORK.
- 10) ACCOMPLISH AND PERFORM THE DEMOLITION IN SUCH A MANNER AS TO PREVENT THE UNAUTHORIZED ENTRY OF PERSONS AT ANY TIME.
- 11) COMPLETELY FILL BELOW GRADE AREAS AND VOIDS RESULTING FROM THE DEMOLITION OF STRUCTURES AND FOUNDATIONS WITH SOIL MATERIALS CONSISTING OF STONE, GRAVEL AND SAND, FREE FROM DEBRIS, TRASH, FROZEN MATERIALS, ROOTS AND OTHER ORGANIC MATTER. STONES USED WILL NOT BE LARGER THAN 6 INCHES IN DIMENSION. MATERIAL FROM DEMOLITION MAY NOT BE USED AS FILL. PRIOR TO PLACEMENT OF FILL MATERIALS, UNDERTAKE ALL NECESSARY ACTION IN ORDER TO INSURE THAT AREAS TO BE FILLED ARE FREE OF STANDING WATER, FROZEN MATERIAL, TRASH, DEBRIS. PLACE FILL MATERIALS LAYERS NOT EXCEEDING 6 INCHES IN LOOSE DEPTH AND COMPACT EACH LAYER AT PLACEMENT TO 95% OPTIMUM DENSITY. GRADE SURFACE TO MEET ADJACENT CONTOURS AND TO PROVIDE SURFACE DRAINAGE.
- 12) REMOVE FROM THE DESIGNATED SITE, AT THE EARLIEST POSSIBLE TIME, ALL DEBRIS RUBBISH, SALVAGEABLE ITEMS, HAZARDOUS AND COMBUSTIBLE SERVICES. REMOVED MATERIALS MAY NOT BE STORED, SOLD OR BURNED ON SITE. REMOVAL OF HAZARDOUS AND COMBUSTIBLE MATERIALS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE PROCEDURES AS AUTHORIZED BY THE FIRE DEPARTMENT OR OTHER APPROPRIATE REGULATORY AGENCIES AND DEPARTMENTS.
- 13) DISCONNECT, SHUT OFF AND SEAL ALL UTILITIES SERVING THE STRUCTURE(S) TO BE DEMOLISHED BEFORE THE COMMENCEMENT OF THE DESIGNATED DEMOLITION. MARK FOR POSITION ALL UTILITY DRAINAGE AND SANITARY LINES AND PROTECT ALL ACTIVE LINES. CLEARLY IDENTIFY BEFORE THE COMMENCEMENT OF DEMOLITION SERVICES THE REQUIRED INTERRUPTION OF ACTIVE SYSTEMS THAT MAY AFFECT OTHER PARTIES, AND NOTIFY ALL APPLICABLE UTILITY COMPANIES TO INSURE THE CONTINUATION OF SERVICE.
- 14) PROTECT EXISTING DRAINAGE SYSTEM(S) AS NECESSARY TO PREVENT SEDIMENT FROM ENTERING DURING CONSTRUCTION. SEE EROSION & SEDIMENT CONTROL PLAN FOR EROSION CONTROL DEVICES.
- 15) ALL WORK WITHIN ROADWAY RIGHT-OF-WAYS TO CONFORM TO MASS DOT STANDARDS.
- 16) THE LIMITS OF WORK SHALL BE CLEARLY MARKED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION OR SITE CLEARING.
- 17) IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO NOTIFY DIG SAFE (DIAL 811) 72 HOURS PRIOR TO ANY EXCAVATION ON THIS SITE. CONTRACTOR SHALL ALSO NOTIFY LOCAL WATER DEPARTMENT TO MARK OUT THEIR UTILITIES.
- 18) NOTES ON THIS PLAN THAT READ "TBR" REPRESENT FEATURES TO BE REMOVED. ANY FEATURES NOT LABELED "TBR" OR "TO BE REMOVED" SHALL BE CONSIDERED EXISTING TO REMAIN.
- 19) EXISTING IRRIGATION SYSTEM TO BE PROTECTED DURING DEMOLITION AND CONSTRUCTION. EXISTING IRRIGATION SYSTEM TO BE RELOCATED, EXTENDED AND CONNECTED TO ALL PROPOSED LANDSCAPED AREAS AS NECESSARY.
- 20) SEE LANDSCAPE PLAN FOR LIMITS OF CLEARING AND GRUBBING. AFTER CLEARING, STRIP AND STOCKPILE TOP SOIL PER LANDSCAPE PLAN, IF APPLICABLE.

NO.	DESCRIPTION	BY	DATE
REVISIONS			
DEMOLITION PLAN			
ASSESSORS MAP 55 LOT 94			
88 WORCESTER STREET			
GRAFTON, MASSACHUSETTS			
PREPARED FOR:			
PETROGAS GROUP NEW ENGLAND, INC.			
168 NORTH MAIN STREET			
ANDOVER, MASSACHUSETTS 01810			



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SCALE: 1"=20'	DATE: NOVEMBER 7, 2017	DRAWING NO. 4088SP.DWG
DRAWN BY: SJB	CHECKED BY: DRJ	PROJECT NO. 408816
		SHEET NO. 3 OF 10

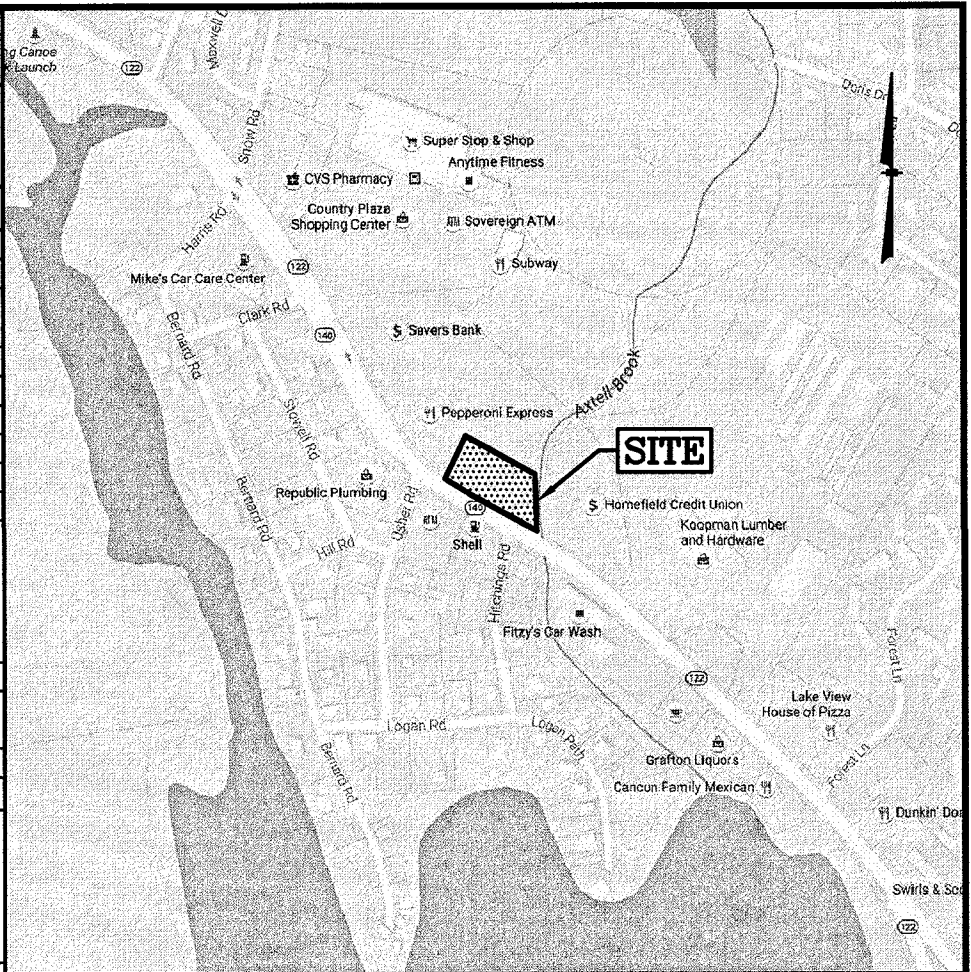


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SIGN KEY			
SIGN I.D. NUMBER	TEXT/COLOR	SIZE/REMARKS	NUMBER OF SIGNS
R1-1	R/W	30" x 30" NEW SIGN WITH POST	2
R7-8	B/W	12" x 18" NEW SIGN WITH POST	1
R7-8A	B/W	12" x 6" NEW SIGN WITH POST	1

TABLE OF ZONING REGULATIONS - GRAFTON, MA
ZONE: COMMUNITY BUSINESS (CB) DISTRICT & WATER SUPPLY PROTECTION (WSP) OVERLAY DISTRICT

DESCRIPTION	REQUIRED	EXISTING	PROVIDED
MINIMUM LOT AREA (SF)	40,000 SF	30,414 SF	30,414 SF (EXISTING)
MINIMUM LOT FRONTAGE	140'	275' ±	275' ±
MINIMUM FRONT YARD SETBACK	40'	BUILDING = 16.4' ± CANOPY = 10.5' ±	BUILDING: 16.4' ± (EXISTING TO REMAIN) CANOPY: 10.5' ± (MATCH EXISTING)
MINIMUM REAR YARD SETBACK	15'	41.2' ±	41.2' ± (EXISTING TO REMAIN)
MINIMUM SIDE YARD SETBACK	15'	17.3' ±	17.3' ± (EXISTING TO REMAIN)
MINIMUM FRONT YARD LANDSCAPE BUFFER	10'	0'	(EXISTING TO REMAIN)
MINIMUM REAR YARD LANDSCAPE BUFFER	10'	15'	15'
MINIMUM SIDE YARD LANDSCAPE BUFFER	10'	>10'	>10'
PARKING SPACE DIMENSIONS	8.5'x18'	NONE STRIPED	8.5'x18', 8'x18'
MINIMUM NUMBER PARKING SPACES	1 SPACE PER 200 SF OF BUILDING AREA (EXCLUDING STORAGE) (2,080 SF = 300 SF STORAGE)/200 9 SPACES	NONE STRIPED	18 SPACES
MINIMUM OPEN SPACE	25%	38%	46%
MINIMUM WETLAND SETBACK	25' NO-DISTURB BUFFER	-	NO NEW ENCROACHMENT. REMOVE EXISTING PAVEMENT WITHIN BUFFER
MAXIMUM BUILDING HEIGHT	35'	<35'	<35'
MAXIMUM BUILDING COVERAGE	30%	<30%	<30%
MAXIMUM FREESTANDING SIGN AREA, HEIGHT & SETBACK	1 SF PER 4 LF OF LOT FRONTAGE (MAX 75 SF) = 275LF/4 = 69 SF ALLOWED. 10' HEIGHT PLUS 1 ADDITIONAL FOOT PER EVERY 2 FEET OF SETBACK DISTANCE (MAX 25'), 12' SETBACK = 16' HEIGHT ALLOWED.	-	64 SF, 20' HIGH, 12' SETBACK (SPECIAL PERMIT REQUIRED FOR SIGN HEIGHT)*
WALL SIGN AREA	ONE PRIMARY, MAX 1.25 SF PER LINEAR FOOT OF WALL = 61 LF x 1.25 = 76 SF AND ONE SECONDARY WALL FACING STREET, MAX 6 SF	-	PRIMARY = 85.3 SF (SPECIAL PERMIT REQ'D)* SECONDARY = 52.5 SF (SPECIAL PERMIT REQ'D)* CANOPY SIGNS = 33 SF (EACH) - 66 SF TOTAL (SPECIAL PERMIT REQ'D)*



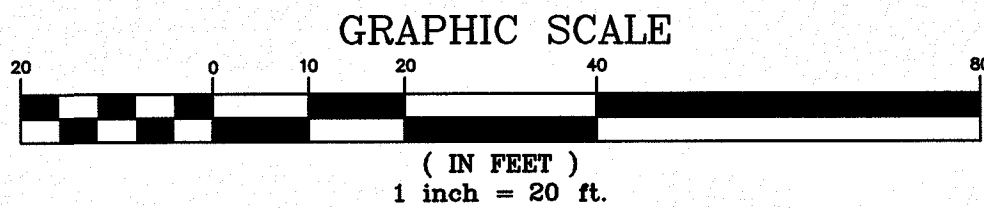
LOCATION MAP
(NOT TO SCALE)

* THE FOLLOWING SIGN SPECIAL PERMITS FROM THE PLANNING BOARD ARE REQUIRED:

- FOR A FREESTANDING SIGN HEIGHT OF 20' WHERE 16' MAX IS ALLOWED.
- FOR A PRIMARY WALL SIGN AREA OF 85.3 SF WHERE 69 SF IS ALLOWED.
- FOR A SECONDARY WALL SIGN AREA OF 52.5 SF WHERE 6 SF IS ALLOWED.
- FOR 2 CANOPY SIGNS, 33 SF EACH. TOTAL SQUARE FOOTAGE = 66 SF.

NOTES:

- EXISTING BOUNDARY AND PLANNIMETRIC INFORMATION AS SHOWN IS THE RESULT OF AN ACTUAL FIELD SURVEY BY THIS OFFICE.
- TAX MAP 55 LOT 94
- ZONING DISTRICT: COMMUNITY BUSINESS (CB) DISTRICT & WATER SUPPLY PROTECTION (WSP) OVERLAY DISTRICT.
- EXISTING USE: FORMER RETAIL MOTOR FUEL OUTLET WITH 2,080 SF SERVICE STATION WITH 3 BAYS AND FUEL DISPENSING CANOPY WITH 3 DISPENSERS (6 FUELING LOCATIONS), AND A SEPARATE DIESEL DISPENSER (2 FUELING LOCATIONS).
- PROPOSED CHANGES: CONVERT THE EXISTING SERVICE STATION INTO A CONVENIENCE STORE. ALL EXISTING FUEL DISPENSER ISLANDS AND THE EXISTING CANOPY ARE TO BE REMOVED. A NEW CANOPY WITH FOUR NEW DISPENSER ISLANDS (8 FUELING LOCATIONS) IS PROPOSED. EXISTING UNDERGROUND FUEL STORAGE TANKS TO REMAIN.
- THIS SITE PLAN COMPLIES WITH THE RULES AND REGULATIONS OF THE AMERICANS WITH DISABILITIES ACT (ADA) AS REVISED IN 2010.
- THE LOCATIONS OF EXISTING SUBSURFACE UTILITIES SHOWN ON THIS PLAN WERE COMPILED FROM AVAILABLE RECORD DRAWINGS AND ARE NOT WARRANTED TO BE CORRECT. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING SUBSURFACE UTILITIES PRIOR TO PERFORMING ANY WORK.
- WRITTEN DIMENSIONS ON THIS PLAN TAKE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN THE EVENT OF A CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWINGS AND/OR SPECIFICATIONS, THE ENGINEER SHALL BE NOTIFIED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIGSAFE (811) PRIOR TO ANY EXCAVATION.
- ALL CONSTRUCTION SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS OF THE TOWN OF GRAFTON AND THE COMMONWEALTH OF MASSACHUSETTS.
- A PORTION OF MAP 55 LOT 94 IS LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA (100 YEAR FLOOD) WITH A BASE FLOOD ELEVATION OF 307.1 (NAVD83) PER FLOOD INSURANCE RATE MAP NUMBER 2502700828E WITH AN EFFECTIVE DATE OF JULY 4, 2011 AND THE FLOOD INSURANCE STUDY OF WORCESTER COUNTY REVISED JULY 16, 2014 (FLOOD PROFILE 10P).
- ALL CONSTRUCTION SHALL CONFORM TO THESE PLANS AND THE STANDARD CONSTRUCTION DRAWINGS AS SUPPLIED BY THE DEVELOPER.
- A SIGN PERMIT SHALL BE OBTAINED PRIOR TO INSTALLATION.
- PROPOSED SNOW STORAGE AREAS AS SHOWN. ANY EXCESS SNOW TO BE TRUCKED OFF-SITE.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR CONDITIONS AT THE SITE. THESE PLANS, PREPARED BY MHF DESIGN CONSULTANTS, INC., DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF THE SURVEYOR AND/OR ENGINEER AS INCLUDED IN THE PLAN SET DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PREPARE AND/OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND/OR LOCAL REGULATIONS.
- ALL UNDERGROUND STORAGE TANKS, PRODUCT PIPING AND VENT LINES SHALL COMPLY WITH CURRENT STATE AND E.P.A. REGULATIONS.
- GENERAL CONTRACTOR IS RESPONSIBLE FOR OBTAINING A MASSACHUSETTS DEP AIR QUALITY PERMIT DWP AQ 06.
- TANK VENTS SHALL BE LOCATED A MINIMUM OF 10 FEET FROM ANY SITE LIGHT POLE.



NO.	DESCRIPTION	BY	DATE
REVISIONS			

SITE PLAN

ASSESSORS MAP 55 LOT 94
 88 WORCESTER STREET
 GRAFTON, MASSACHUSETTS
 PREPARED FOR:
PETROGAS GROUP NEW ENGLAND, INC.
 168 NORTH MAIN STREET
 ANDOVER, MASSACHUSETTS 01810

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DRAWN BY: SJB	CHECKED BY: DRJ	PROJECT NO. 408816
		SHEET NO. 4 OF 10

MAP 55 LOT 94
 30,414 Sq.Ft.
 0.698 Ac.±

MAP 46 LOT 68
 N/F FRANK E. GROCCIA, JR
 4 JANET CIRCLE
 GRAFTON, MA 01536
 BOOK 9899 PAGE 369

MAP 46 LOT 68A
 N/F FRANCINE A. KARASKA
 21 HERITAGE LANE
 GROTON, MA 01450
 BOOK 52587 PAGE 358

MAP 46 LOT 68B
 N/F FRANK E. GROCCIA, JR
 4 JANET CIRCLE
 GRAFTON, MA 01536
 BOOK 9899 PAGE 369

MAP 46 LOT 68C
 FRANK E. GROCCIA
 PO BOX 223
 N GRAFTON, MA 01536
 BOOK 5360 PAGE 26

MAP 55 LOT 95
 N/F GRAFTON SUBURBAN CREDIT UNION
 89 WORCESTER STREET
 N GRAFTON, MA 01536
 BOOK 17023 PAGE 192

WORCESTER STREET

(PUBLIC - VARIABLE WIDTH - S.H.L.O. #2580)

MAP 55 LOT 84
 N/F 89 WORCESTER STREET LLC
 49 CHURCH STREET
 WHITINSVILLE, MA 01588
 BOOK 48400 PAGE 201

MAP 55 LOT 93
 N/F DRAKE PETROLEUM COMPANY INC.
 15 NORTHEAST INDUSTRIAL ROAD
 BRANFORD, CT 06405
 BOOK 5726 PAGE 224

MAP 55 LOT 5
 N/F JULIA L. CAROLINO
 1 HITCHINGS ROAD
 GRAFTON, MA 01536
 BOOK 36433 PAGE 297

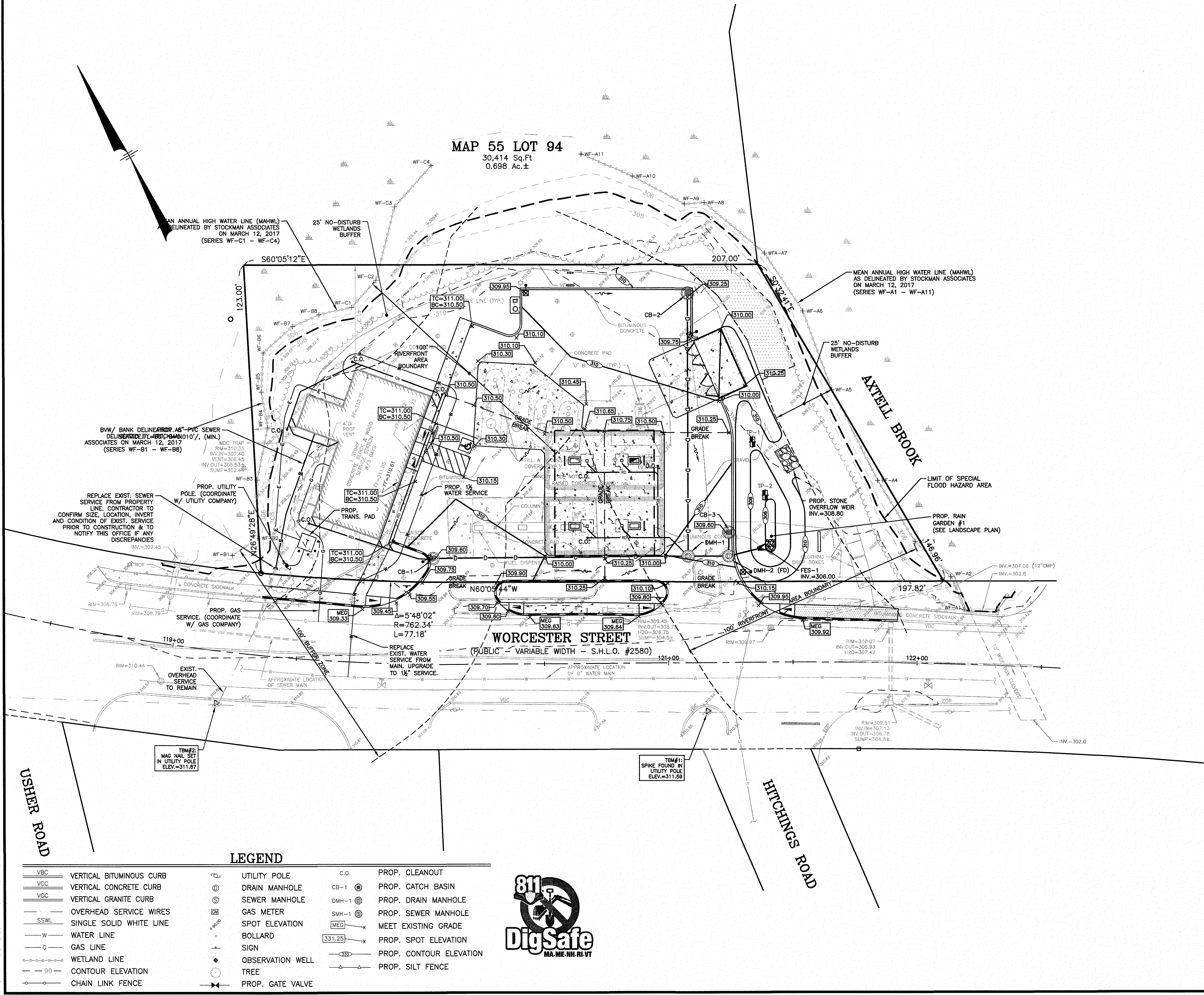
LEGEND

VBC	VERTICAL BITUMINOUS CURB	UTILITY POLE
VCC	VERTICAL CONCRETE CURB	DRAIN MANHOLE
VGC	VERTICAL GRANITE CURB	SEWER MANHOLE
SSWL	OVERHEAD SERVICE WIRES	GAS METER
W	SINGLE SOLID WHITE LINE	SPOT ELEVATION
G	WATER LINE	BOLLARD
G	GAS LINE	SIGN
W	WETLAND LINE	OBSERVATION WELL
90	CONTOUR ELEVATION	TREE
CLF	CHAIN LINK FENCE	NUMBER OF PARKING SPACES



--- PROP. VERTICAL GRANITE CURB

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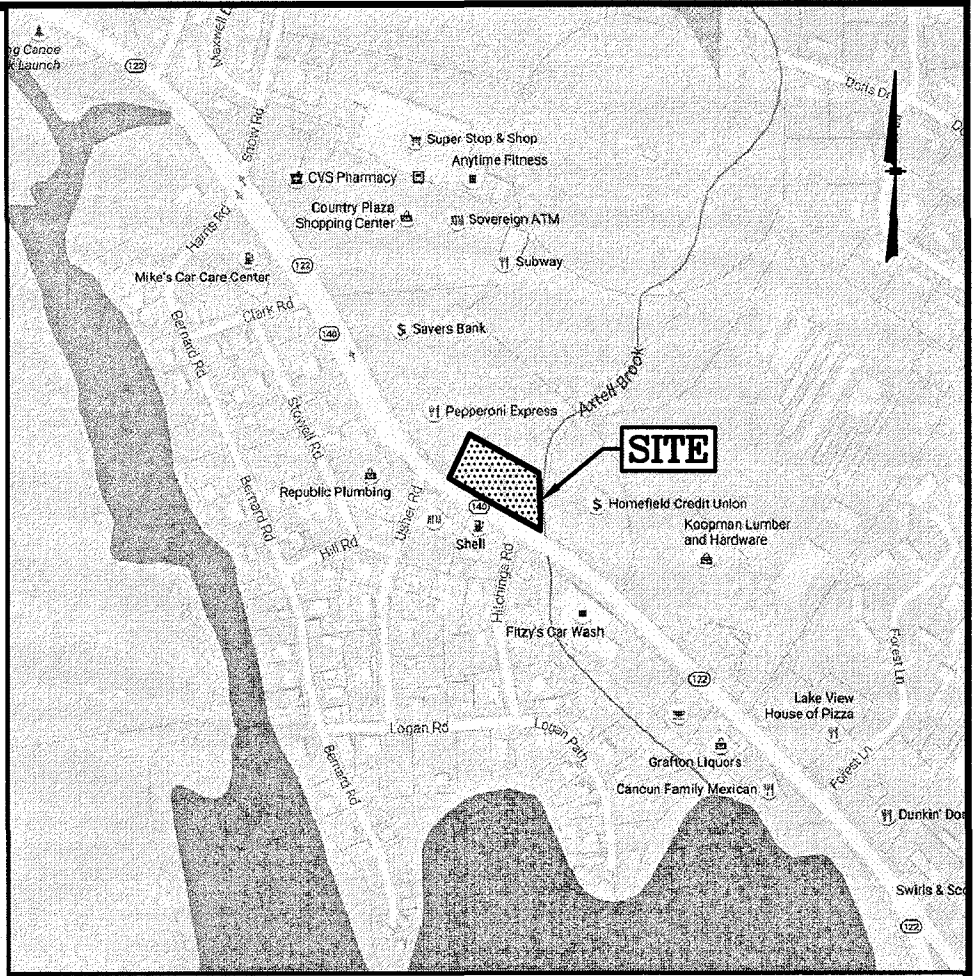


DRAINAGE STRUCTURES

*CB-1	RIM=309.60	DMH-1	RIM=310.00
INV.IN=307.25(RD)	INV.IN=308.25(CB-1)	INV.IN=308.25(CB-1)	INV.IN=308.25(CB-2)
INV.OUT=306.75	INV.IN=306.50(RD)	INV.IN=306.50(RD)	INV.OUT=306.25
*CB-2	RIM=309.25	DMH-2 (FD)	RIM=309.90
INV.OUT=306.75	CB-3	INV.IN=306.15(CB-3)	INV.IN=306.15(DMH-1)
RIM=309.60	INV.OUT=306.25	INV.OUT=306.15	

DRAINAGE PIPE SCHEDULE					
FROM: STRUCTURE NUMBER	PIPE SIZE (inches)	TYPE OF PIPE	APPROX. PIPE LENGTH (feet)	SLOPE OF PIPE (ft./ft.)	TO: STRUCTURE NUMBER
CB-1	12	HDPE	103	0.005	DMH-1
CB-2	12	HDPE	105	0.005	DMH-1
DMH-1	15	HDPE	16	0.006	DMH-2
CB-3	12	HDPE	10	0.010	DMH-2
DMH-2	15	HDPE	15	0.010	FES-1

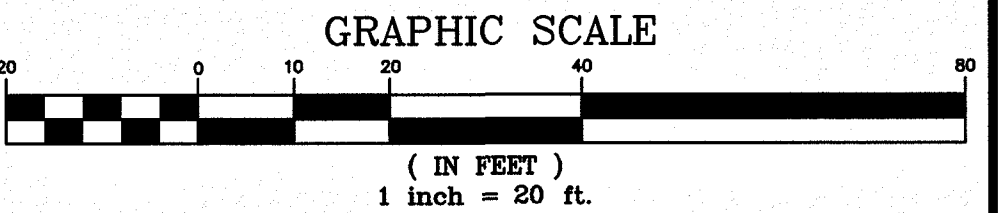
(FD) DENOTES FIRST DEFENSE FDBHC HYDRODYNAMIC SEPARATOR UNIT. SEE DETAIL.
* DENOTES LOW PROFILE FRAME & GRATE/ COVER AND TOP SLAB





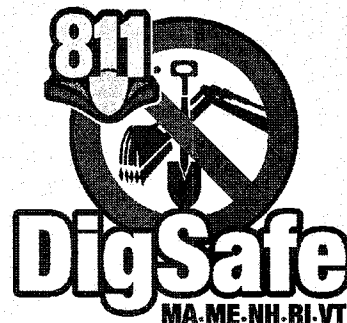
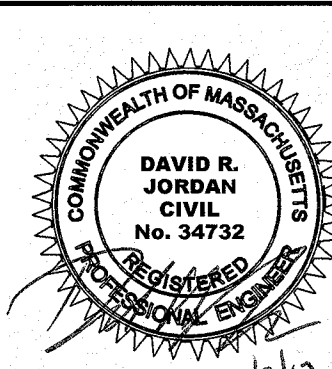
LOCATION MAP
(NOT TO SCALE)

NOTES:

- 1) ALL SITE DRAINAGE PIPE SHALL BE CORRUGATED HIGH-DENSITY POLYETHYLENE PIPE WITH STANDARD JOINTS, DUAL-WALL, SMOOTH INTERIOR AS MANUFACTURED BY ADS, INC., OR APPROVED EQUAL, UNLESS OTHERWISE NOTED ON PLAN.
- 2) ALL ROOF AND CANOPY DRAIN PIPE SHALL BE 6" PVC(SDR-35), EXCEPT WITHIN 10 FEET OF A BUILDING FOUNDATION WHERE CAST IRON PIPE SHALL BE USED, MIN. SLOPE=1.0%.
- 3) ALL SANITARY SEWER PIPE SHALL BE PVC (SCH-40) UNLESS OTHERWISE NOTED.
- 4) ALL WATER PIPE SHALL BE TYPE "K" COPPER.
- 5) ELEVATIONS ARE BASED ON NAVD 1988 DATUM.
- 6) ALL PROPOSED ELEVATIONS AS SHOWN ARE BOTTOM OF CURB ELEVATIONS, UNLESS OTHERWISE NOTED.
- 7) ANY UTILITY FIELD ADJUSTMENTS SHALL BE APPROVED BY THE LOCAL AUTHORITIES AND THE DEVELOPER PRIOR TO INSTALLATION.
- 8) THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR IS TO VERIFY EXACT LOCATION PRIOR TO CONSTRUCTION. THE CONTRACTOR IS TO NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES. CONSTRUCTION SHALL COMMENCE BEGINNING AT THE LOWEST INVERT (POINT OF CONNECTION) AND PROGRESS UP GRADIENT. PROPOSED INTERFACE POINTS (CROSSINGS) WITH EXISTING UNDERGROUND INSTALLATIONS SHALL BE FIELD VERIFIED BY TEST PIT PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- 9) ALL CONSTRUCTION SHALL CONFORM TO MUNICIPAL DPW AND ALL APPLICABLE STATE AND FEDERAL STANDARDS.
- 10) ALL SEWER CONSTRUCTION CONFORM TO DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS.
- 11) THE CONTRACTOR SHALL CALL AND COORDINATE WITH DIG-SAFE (811) PRIOR TO COMMENCING ANY EXCAVATION.
- 12) THIS SITE WILL NOT REQUIRE A USEPA NPDES PERMIT FOR STORMWATER DISCHARGE FOR THE SITE CONSTRUCTION SINCE THE DISTURBANCE DOES NOT EXCEED ONE ACRE (ACTUAL DISTURBANCE = 30,250 SF).
- 13) ALL TRAFFIC CONTROL AND TEMPORARY CONSTRUCTION SIGNAGE ARRANGEMENTS, ACCEPTABLE TO MASSDOT AND GRAFTON DEPARTMENT OF PUBLIC WORKS, SHALL BE EMPLOYED DURING OPERATIONS WITHIN THE PUBLIC RIGHT-OF-WAY.
- 14) ALL ADA ACCESSIBLE WALKWAYS CANNOT EXCEED 5% RUNNING SLOPE AND 2% CROSS SLOPE. RAMPS CANNOT EXCEED 8.33% RUNNING SLOPE AND 2% CROSS SLOPE. AND HC PARKING STALLS AND ACCESS AISLES CANNOT EXCEED 2% SLOPE IN ANY DIRECTION. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES.
- 15) CONTRACTOR TO FIELD ADJUST GRADES FOR THE TANK PAD TO SHED WATER.
- 16) ALL PIPE DATA IS CALCULATED TO CENTER OF STRUCTURE, TYP.
- 17) ALL PROPOSED CATCH BASINS SHALL HAVE 4" SUMPS AND OUTLETS EQUIPPED WITH "SNOUT" OIL HOODS OR APPROVED EQUAL.



NO.	DESCRIPTION						BY	DATE	
REVISIONS									
GRADING, DRAINAGE & UTILITIES PLAN									
ASSESSORS MAP 55 LOT 94 88 WORCESTER STREET GRAFTON, MASSACHUSETTS PREPARED FOR: PETROGAS GROUP NEW ENGLAND, INC. 168 NORTH MAIN STREET ANDOVER, MASSACHUSETTS 01810									
				44 Silas Road, Suite One Salem, New Hampshire 03079 (603) 893-0720 ENGINEERS • PLANNERS • SURVEYORS www.mhfdesign.com					
SCALE: 1"=20'				DATE: NOVEMBER 7, 2017				DRAWING NO. 4088SP.DWG	
DRAWN BY:		CHECKED BY:		PROJECT NO.		SHEET NO.			
SJB		DRJ		408816		5 OF 10			



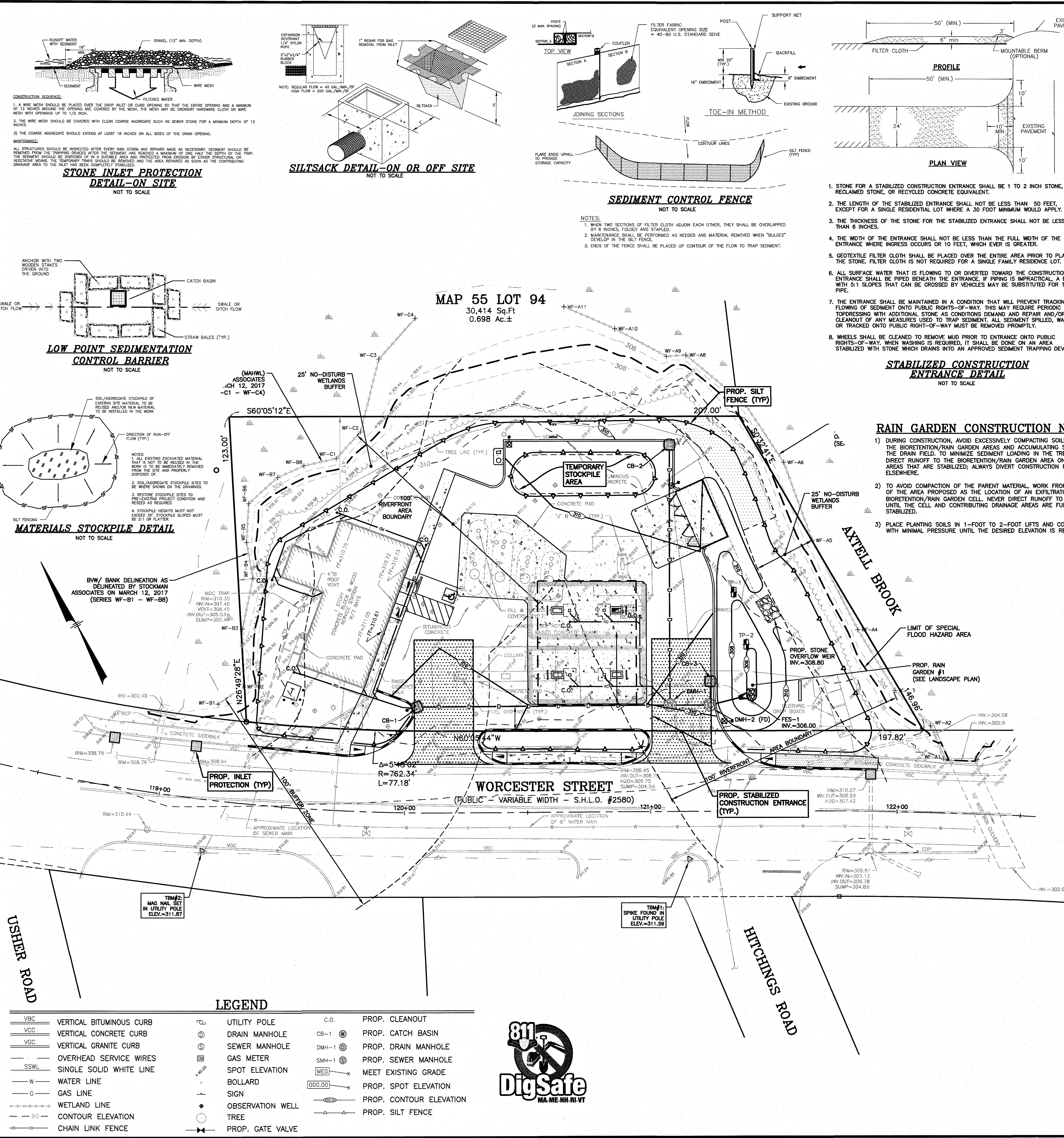
LEGEND

VBC	VERTICAL BITUMINOUS CURB	U	UTILITY POLE	C.O.	PROP. CLEANOUT
VCC	VERTICAL CONCRETE CURB	DM	DRAIN MANHOLE	CB-1	PROP. CATCH BASIN
VGC	VERTICAL GRANITE CURB	SMH	SEWER MANHOLE	DMH-1	PROP. DRAIN MANHOLE
SSWL	OVERHEAD SERVICE WIRES	MEG	GAS METER	SMH-1	PROP. SEWER MANHOLE
W	SINGLE SOLID WHITE LINE	MEG	SPOT ELEVATION	MEG	MEET EXISTING GRADE
W	WATER LINE	MEG	BOLLARD	MEG	PROP. SPOT ELEVATION
G	GAS LINE	MEG	SIGN	MEG	PROP. CONTOUR ELEVATION
W	WETLAND LINE	MEG	OBSERVATION WELL	MEG	PROP. SILT FENCE
90	CONTOUR ELEVATION	MEG	TREE	MEG	
CLF	CHAIN LINK FENCE	MEG	PROP. GATE VALVE	MEG	

USER ROAD

HITCHES ROAD

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**STONE INLET PROTECTION
DETAIL-ON SITE**
NOT TO SCALE

SILTSACK DETAIL-ON OR OFF SITE
NOT TO SCALE

SEDIMENT CONTROL FENCE
NOT TO SCALE

**STABILIZED CONSTRUCTION
ENTRANCE DETAIL**
NOT TO SCALE

RAIN GARDEN CONSTRUCTION NOTES:

- 1) DURING CONSTRUCTION, AVOID EXCESSIVELY COMPACTING SOILS AROUND THE BIOTENTION/RAIN GARDEN AREAS AND ACCUMULATING SILT AROUND THE DRAIN FIELD. TO MINIMIZE SEDIMENT LOADING IN THE TREATMENT AREA, DIRECT RUNOFF TO THE BIOTENTION/RAIN GARDEN AREA ONLY FROM AREAS THAT ARE STABILIZED; ALWAYS DIVERT CONSTRUCTION RUNOFF ELSEWHERE.
- 2) TO AVOID COMPACTION OF THE PARENT MATERIAL, WORK FROM THE EDGE OF THE AREA PROPOSED AS THE LOCATION OF AN EXFILTRATING BIOTENTION/RAIN GARDEN CELL. NEVER DIRECT RUNOFF TO THE CELL UNTIL THE CELL AND CONTRIBUTING DRAINAGE AREAS ARE FULLY STABILIZED.
- 3) PLACE PLANTING SOILS IN 1-FOOT TO 2-FOOT LISTS AND COMPACT THEM WITH MINIMAL PRESSURE UNTIL THE DESIRED ELEVATION IS REACHED.

CONSTRUCTION SEQUENCE:

- 1) INSTALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AS REQUIRED.
- 2) CUT AND STUMP AREAS OF PROPOSED CONSTRUCTION.
- 3) REMOVE AND STOCKPILE ANY EXISTING TOPSOIL SUITABLE FOR RE-USE. STOCKPILE SHALL BE SEED TO PREVENT EROSION.
- 4) CONSTRUCT CLOSED DRAINAGE SYSTEM. PROTECT CULVERT INLETS AND CATCH BASINS WITH SEDIMENTATION BARRIERS.
- 5) PERFORM SITE GRADING, PLACING SILTATION FENCES AS REQUIRED TO CONTROL SOIL EROSION.
- 6) INSTALL UNDERGROUND UTILITIES.
- 7) BEGIN TEMPORARY AND PERMANENT SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEED OR MULCHED IMMEDIATELY AFTER THEIR CONSTRUCTION.
- 8) DAILY, OR AS REQUIRED, CONSTRUCT, INSPECT, AND IF NECESSARY, RECONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, SILT FENCES AND SEDIMENT TRAPS INCLUDING MULCHING AND SEEDING.
- 9) BEGIN EXCAVATION FOR AND CONSTRUCTION OF BUILDINGS.
- 10) FINISH PAVING ALL DRIVES AND PARKING AREAS.
- 11) COMPLETE PERMANENT SEEDING AND LANDSCAPING.
- 12) AFTER GRASS HAS BEEN FULLY GERMINATED IN ALL SEEDING AREAS, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.

TEMPORARY EROSION CONTROL MEASURES:

- 1) SEDIMENT TRAPS SHALL BE INSTALLED AS REQUIRED. BARRIERS AND TRAPS ARE TO BE MAINTAINED AND CLEANED UNTIL ALL SLOPES HAVE A HEALTHY STAND OF GRASS.
- 2) MULCH SHALL BE MOWINGS OF ACCEPTABLE HERBACEOUS GROWTH, FREE FROM NOXIOUS WEEDS OR WOODY STEMS, AND SHALL BE DRY. NO SALT HAY SHALL BE USED.
- 3) FILL MATERIAL SHALL BE FREE FROM STUMPS, WOOD, ROOTS, ETC.
- 4) STOCKPILED MATERIALS SHALL BE PLACED ONLY IN AREAS SHOWN ON THE PLANS. STOCKPILES SHALL BE PROTECTED BY SILTATION FENCE AND SEED TO PREVENT EROSION. THESE MEASURES SHALL REMAIN UNTIL ALL MATERIAL HAS BEEN PLACED OR DISPOSED OFF SITE.
- 5) ALL DISTURBED AREAS SHALL BE LOAMED AND SEED. A MINIMUM OF 6 INCHES OF LOAM SHALL BE INSTALLED WITH NOT LESS THAN ONE POUND OF SEED PER 50 SQUARE YARDS OF AREA.
- 6) SEED MIX SHALL BE EQUAL PARTS OF RED FESCUE (CREEPING), KENTUCKY BLUEGRASS, REDTOP, PERENNIAL RYEGRASS.
- 7) AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED THE TEMPORARY EROSION CONTROL MEASURES ARE TO BE REMOVED.
- 8) PAVED ROADWAYS AND PARKING LOTS MUST BE KEPT CLEAN AT ALL TIMES. PROVIDE SWEEPING ON A DAILY BASIS OR AS DIRECTED BY THE CITY.
- 9) ALL EXISTING & PROPOSED CATCH BASIN INLETS WILL BE PROTECTED WITH INLET PROTECTION - SEE DETAIL.
- 10) ALL DEWATERING OPERATIONS MUST DISCHARGE DIRECTLY INTO A SEDIMENT FILTER AREA.

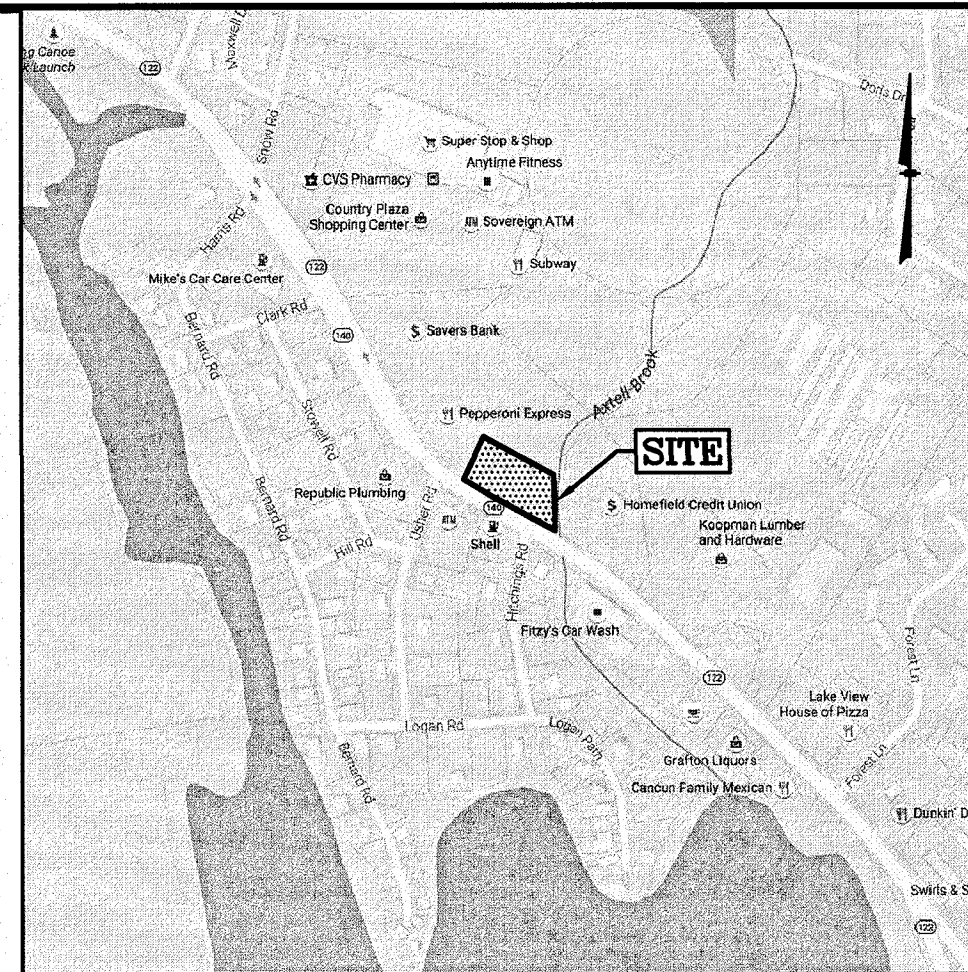
**OPERATIONS/MAINTENANCE PLAN FOR
STORMWATER SYSTEM**

CONSTRUCTION PHASE:

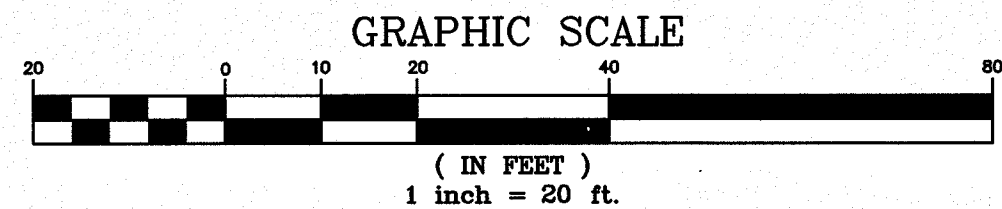
- 1) THE BMP'S ASSOCIATED WITH THIS PROJECT WILL BE OWNED BY PETROGAS GROUP NEW ENGLAND, INC., WHO WILL BE RESPONSIBLE FOR INSPECTION, OPERATION AND MAINTENANCE.
- 2) THE CONTRACTOR IS TO INSTALL AND MAINTAIN DRAINAGE FACILITIES AS SHOWN ON THE SITE PLANS BY MHF DESIGN CONSULTANTS, INC.
- 3) PRIOR TO CONSTRUCTION, ALL EROSION/SILT CONTROL DEVICES SHOWN ON ABOVE PLAN ARE TO BE INSTALLED. TO PREVENT SILT INTRUSION INTO SURROUNDING AREAS DURING CONSTRUCTION, THE CONTRACTOR IS TO SET SILT FENCING AT ALL SLOPES WHICH MAY ERODE IN THE DIRECTION OF ANY OPEN DRAINAGE FACILITIES OR ABUTTING PROPERTY. SUCH PREVENTIVE MEASURES ARE TO BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROCESS.
- 4) ALL CONSTRUCTION OF DRAINAGE FACILITIES IS TO BE INSPECTED BY AN AUTHORIZED AGENT TO VERIFY CONFORMANCE TO THE DESIGN PLAN.
- 5) THE SEQUENCE OF DRAINAGE CONSTRUCTION SHALL BE AS FOLLOWS:
 - A) CLEAR, GRUB, EXCAVATE AREAS FOR DETENTION SYSTEMS.
 - B) INSTALL CATCH BASINS, PIPES AND MANHOLES.
 - C) EROSION CONTROLS ARE TO BE INSPECTED AND MAINTAINED ON A DAILY BASIS. UPON DISCOVERY OF SILTATION BUILD-UP IN ANY CATCH BASIN SUMP OR ANY OTHER STRUCTURE, CLEANING SHALL BE PERFORMED WITHIN 24 HOURS.
 - D) ALL EXPOSED SOILS SHALL BE IMMEDIATELY STABILIZED WITH A LAYER OF MULCH HAY.
 - E) UPON INSTALLATION OF CATCH BASINS, INLET PROTECTION - AS DESCRIBED ABOVE - SHALL BE INSTALLED AND MAINTAINED UNTIL READY FOR PAVING.
 - F) PRIOR TO CONSTRUCTION OF IMPERVIOUS AREAS, ALL DRAINAGE STRUCTURES AND PIPES SHALL BE INSTALLED AND INSPECTED FOR PROPER FUNCTION. DURING CONSTRUCTION OF OTHER SITE FEATURES, ALL DRAINAGE FACILITIES SHALL BE INSPECTED ON A DAILY BASIS AND CLEANED/REPAIRED IMMEDIATELY UPON DISCOVERY OF SEDIMENT BUILD-UP OR DAMAGE.
 - G) AFTER PAVING IS INSTALLED, IT SHALL BE SWEEP CLEAN ON A MONTHLY BASIS.
- 6) INSPECTIONS ARE TO BE PERFORMED AND INSPECTION LOGS FILLED OUT AS DIRECTED BY THE TOWN FROM THE START OF CONSTRUCTION THROUGH FINAL STABILIZATION. THE START OF CONSTRUCTION MEANS THE INITIAL DISTURBANCE OF SOILS ASSOCIATED WITH CONSTRUCTION. FINAL STABILIZATION MEANS 70% VEGETATIVE GROWTH FOR UNPAVED AREAS.


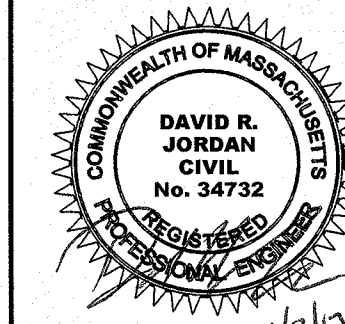
POST CONSTRUCTION PHASE:

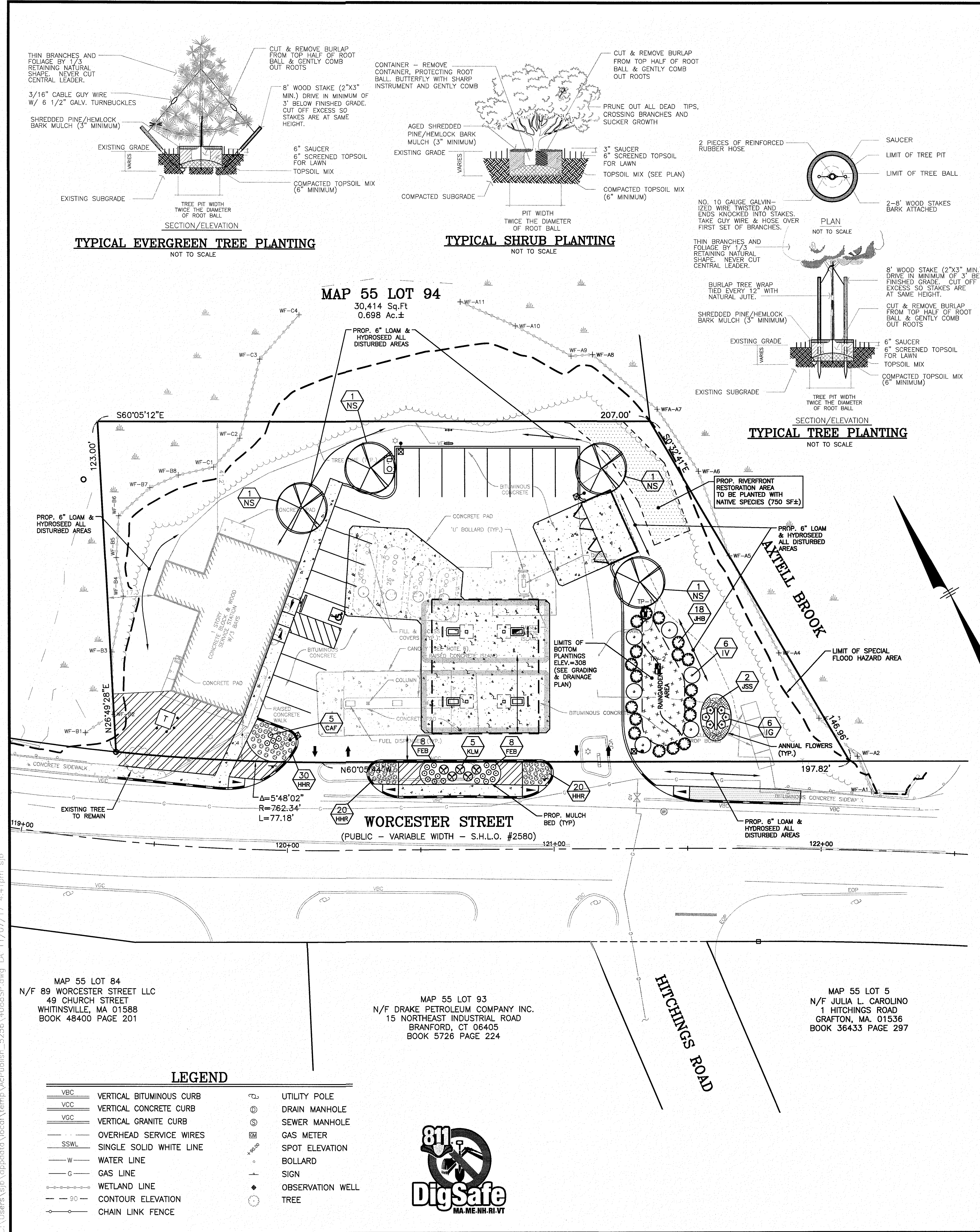
- THE OWNER IS TO BE RESPONSIBLE FOR MAINTENANCE OF ALL DRAINAGE STRUCTURES IN THE PROJECT - INCLUDING DRAIN PIPES AND DRAINAGE SYSTEM. THE FUTURE OWNER IS EXPECTED TO BE PETROGAS GROUP NEW ENGLAND, INC., WHO WILL ULTIMATELY BE RESPONSIBLE FOR COMPLIANCE WITH PLAN.
- REGULAR MAINTENANCE IS TO INCLUDE THE FOLLOWING:**
- 1) INSPECTION OF ALL DRAINAGE FACILITIES (CATCH BASINS & RAIN GARDEN AREA) EVERY THREE MONTHS. DURING THE FIRST YEAR OF OPERATION, ALL DRAINAGE FACILITIES SHOULD BE INSPECTED AFTER EVERY STORM, AND 2-3 DAYS AFTERWARD. DURING THESE INSPECTIONS, THE INSPECTOR AS DESIGNATED BY PETROGAS GROUP NEW ENGLAND, INC., SHALL LOOK FOR EVIDENCE OF THE FOLLOWING: STRUCTURAL DAMAGE, SILT ACCUMULATION (NEAR INLET INVERTS ON CATCH BASINS), AND IMPROPER FUNCTION. REPORTS SHALL BE FILED FOR EVERY INSPECTION.
 - 2) AFTER INSPECTION, IF ANY OF THE ABOVE CONDITIONS EXIST, THE INSPECTOR SHALL NOTIFY THE DEVELOPER, WHO SHALL IMMEDIATELY ARRANGE FOR ALL NECESSARY REPAIRS AND SEDIMENT REMOVAL.
 - 3) PARKING AREAS ARE TO BE SWEEP CLEAN AS NEEDED (I.E. VISUALLY NOTICEABLE DEBRIS BUILD-UP).
 - 4) THE CATCH BASINS AND DRAINAGE SYSTEM ARE TO BE INSPECTED EVERY THREE MONTHS. REMOVE OIL, DEBRIS AND SEDIMENT AFTER INSPECTIONS.
 - 5) ALL GRADED SLOPES SHALL BE INSPECTED EVERY SPRING FOR EROSION. UPON DISCOVERY OF ANY FAILURE (I.E. EROSION) LOAM AND SEED SHALL BE PUT IN PLACE AND NURTURED.
 - 6) DURING THE WINTER MONTHS, ALL SNOW IS TO BE STORED SUCH THAT SNOWMELTING IS CONTROLLED. IN THE EVENT THE AMOUNT OF SNOW EXCEEDS SUCH CAPACITY, IT IS TO BE REMOVED OFF-SITE. THE MINIMUM AMOUNT OF DEICING CHEMICALS NEEDED IS TO BE USED.

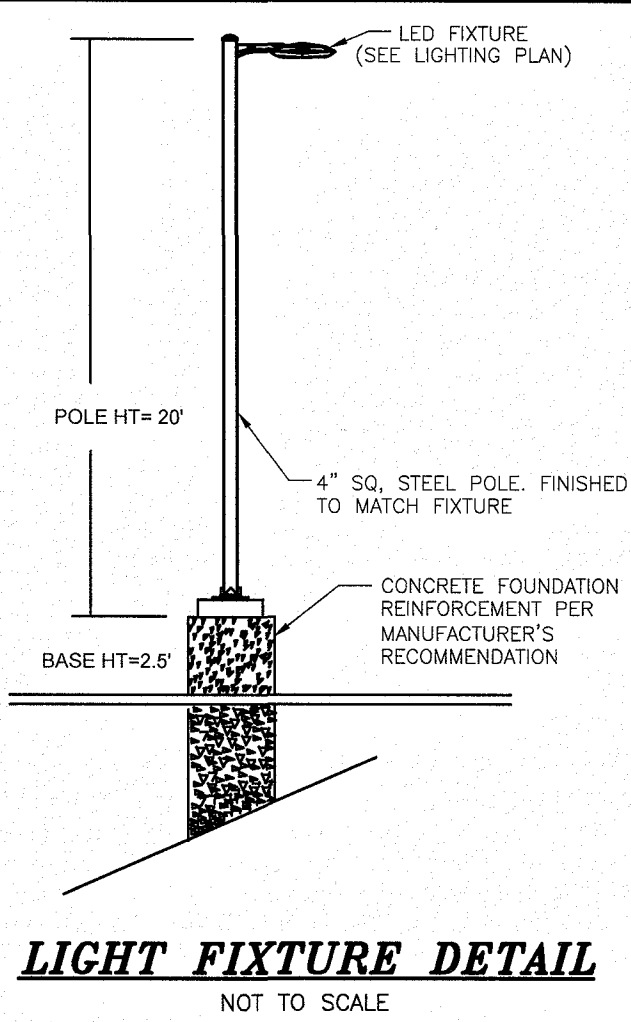


LOCATION MAP
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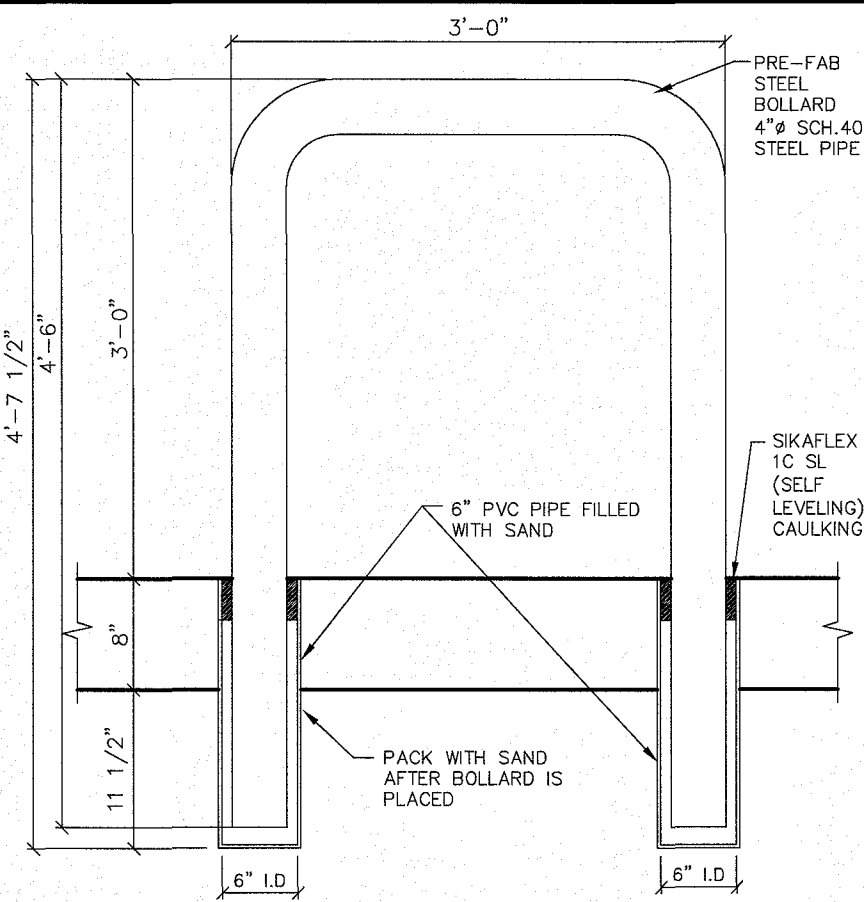


NO.	DESCRIPTION	BY	DATE
REVISIONS			
EROSION & SEDIMENT CONTROL PLAN			
ASSESSORS MAP 55 LOT 94 88 WORCESTER STREET GRAFTON, MASSACHUSETTS PREPARED FOR: PETROGAS GROUP NEW ENGLAND, INC. 168 NORTH MAIN STREET ANDOVER, MASSACHUSETTS 01810			
 44 Shies Road, Suite One Salem, New Hampshire 03079 (603) 893-0720 ENGINEERS • PLANNERS • SURVEYORS www.mhfdesign.com			
			
SCALE: 1"=20'		DATE: NOVEMBER 7, 2017	
DRAWN BY: SJB		CHECKED BY: DRJ	
PROJECT NO: 408816		DRAWING NO: 4088SP.DWG	
		SHEET NO: 6 OF 10	

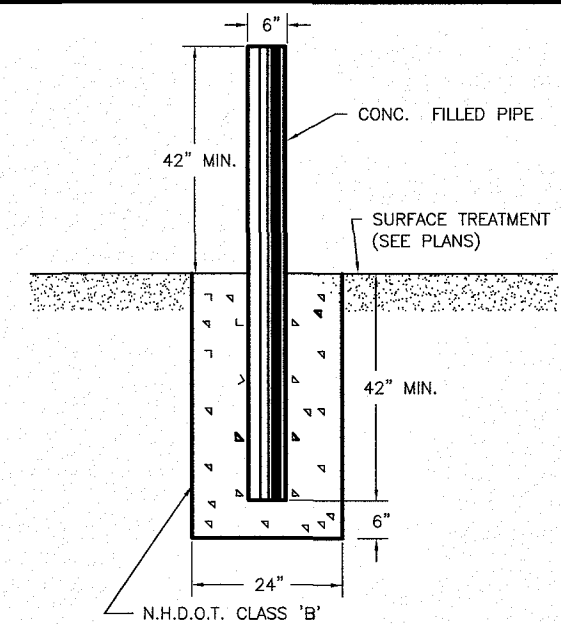




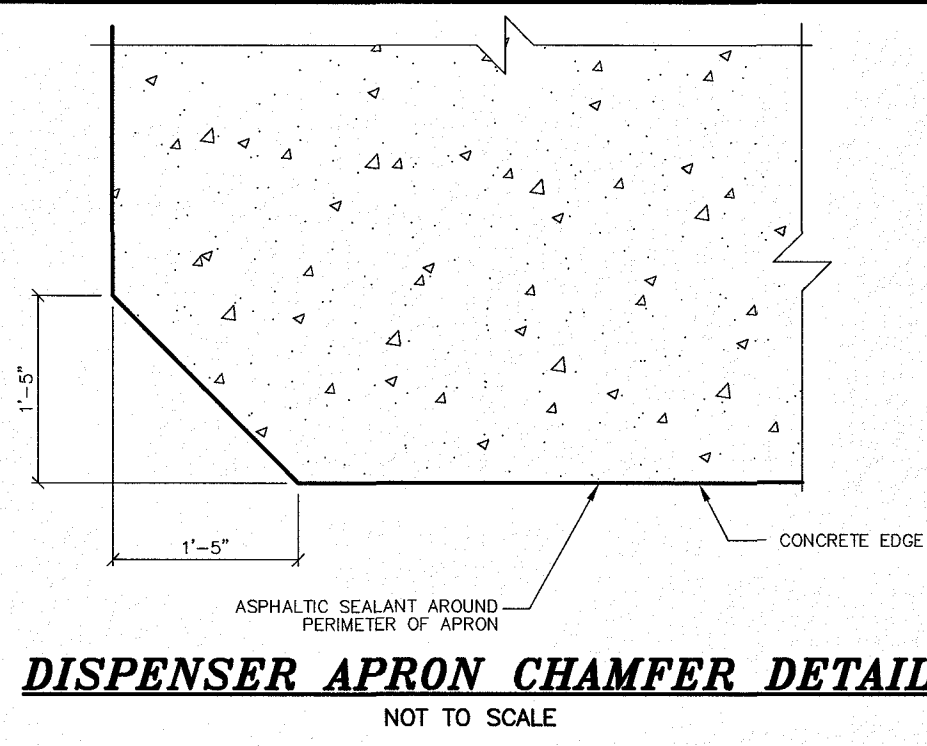
LIGHT FIXTURE DETAIL
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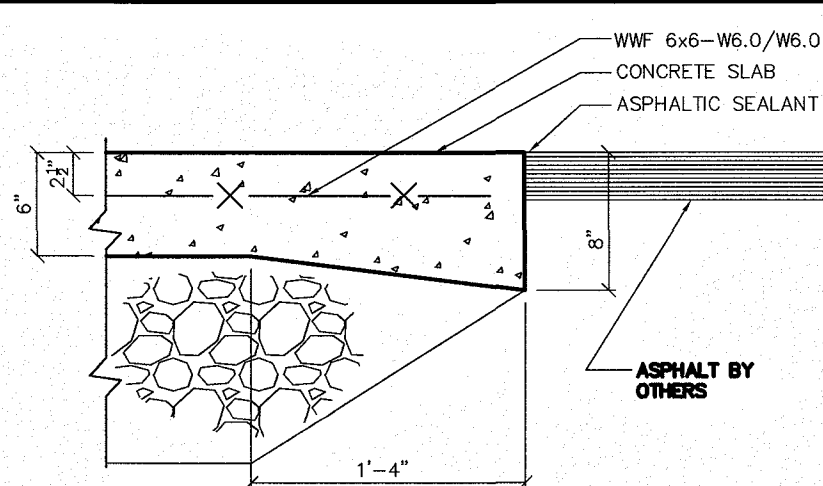
TYPICAL U-SHAPED BOLLARD
NOT TO SCALE



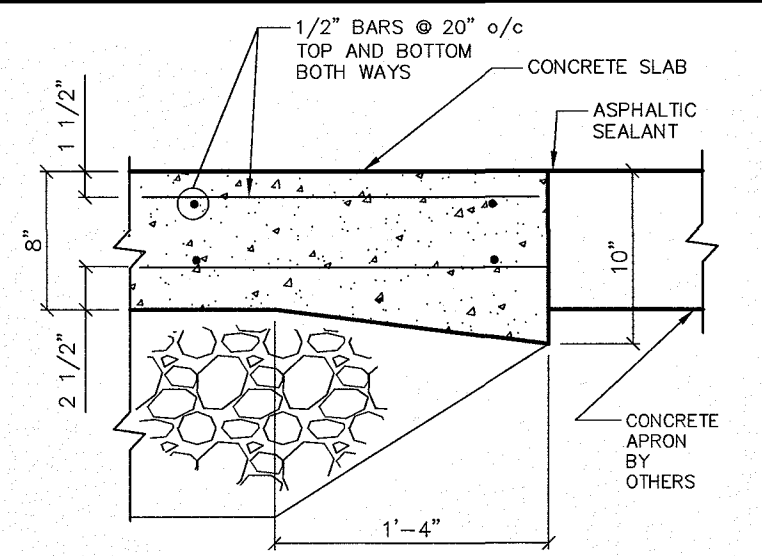
PIPE BOLLARD DETAIL
NOT TO SCALE



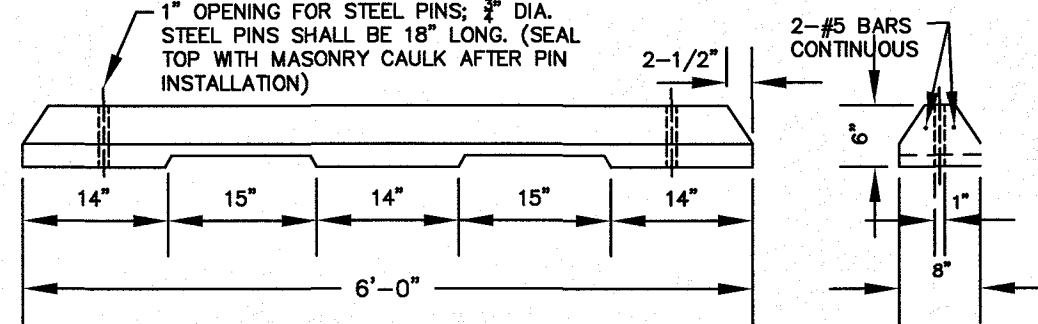
DISPENSER APRON CHAMFER DETAIL
NOT TO SCALE



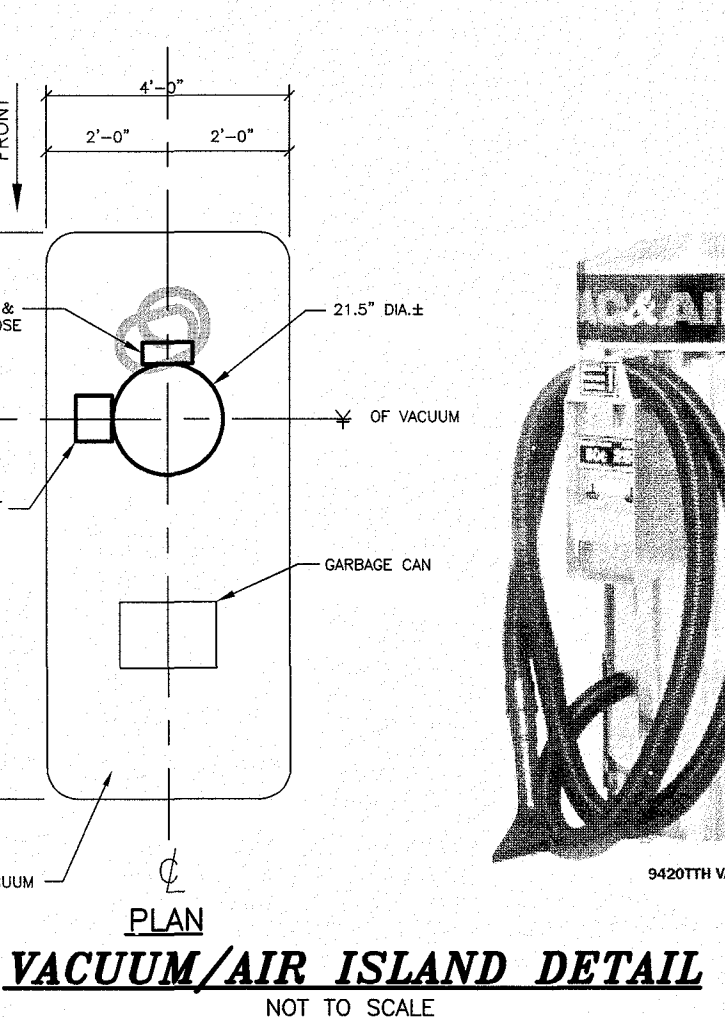
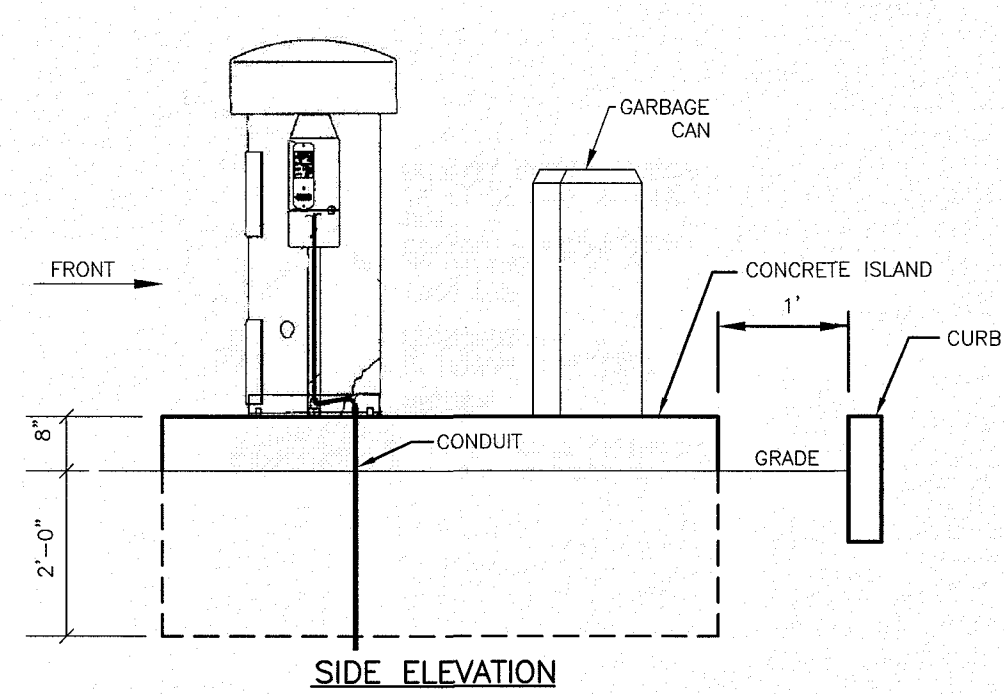
DISPENSER APRON EDGE DETAIL
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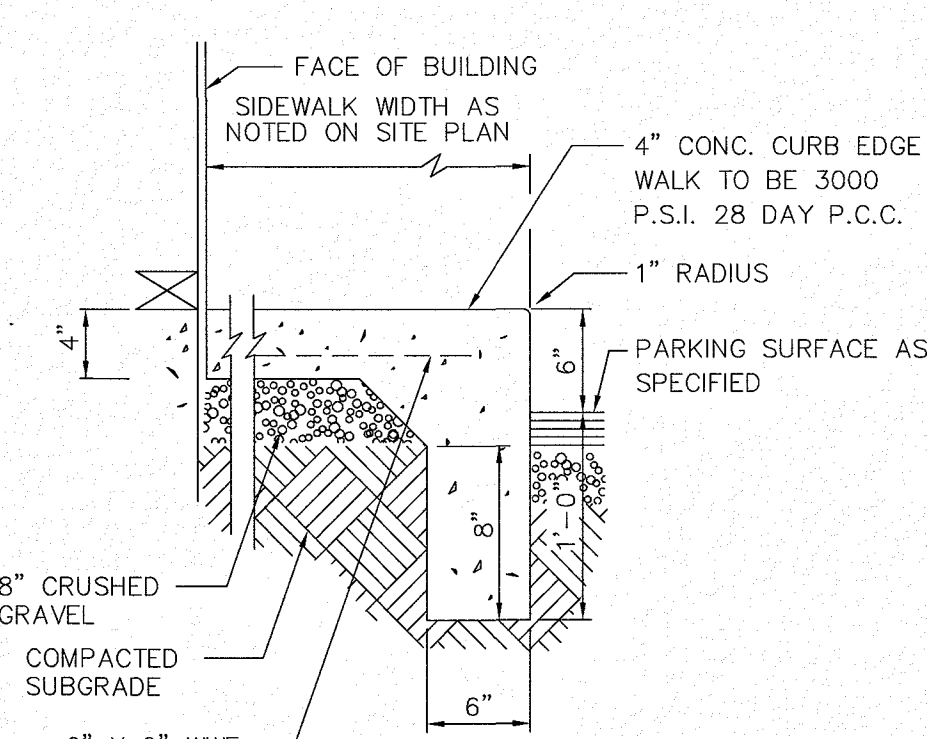
TANK APRON EDGE DETAIL
NOT TO SCALE



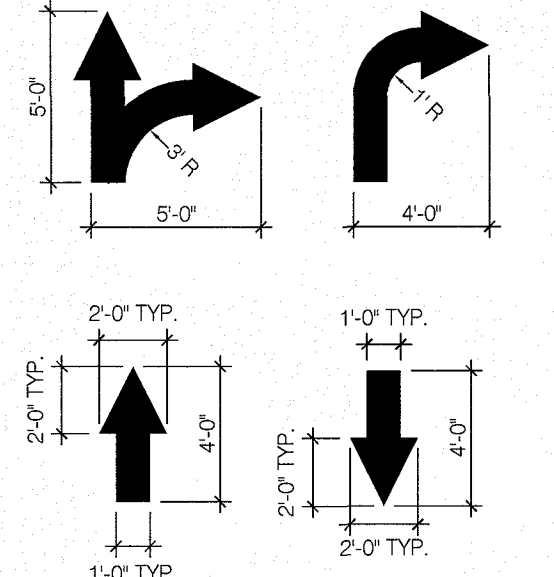
CONCRETE CURB STOP
NOT TO SCALE



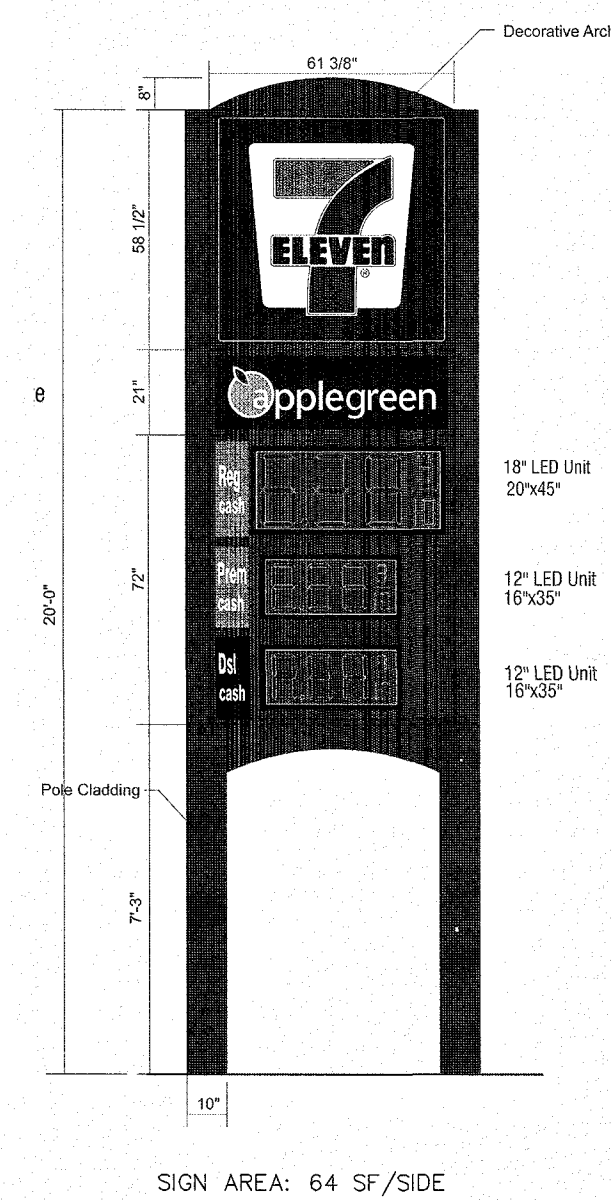
VACUUM/AIR ISLAND DETAIL
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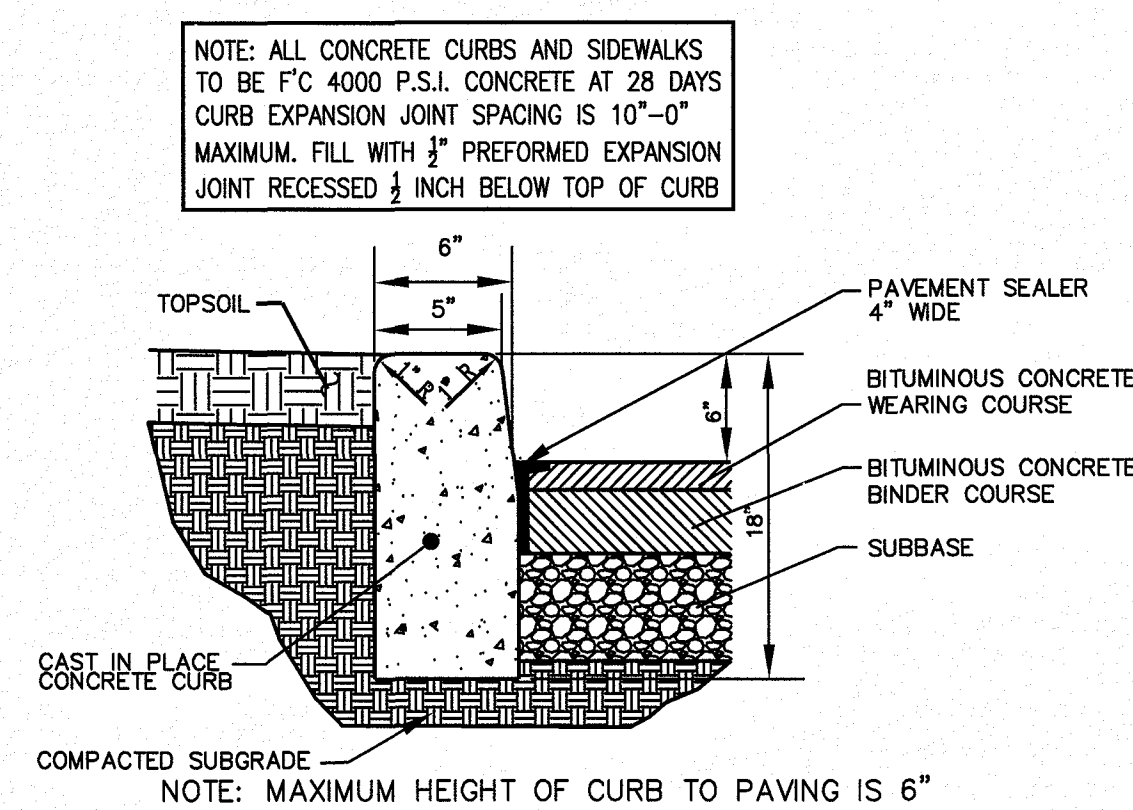
ONSITE SIDEWALK DETAIL
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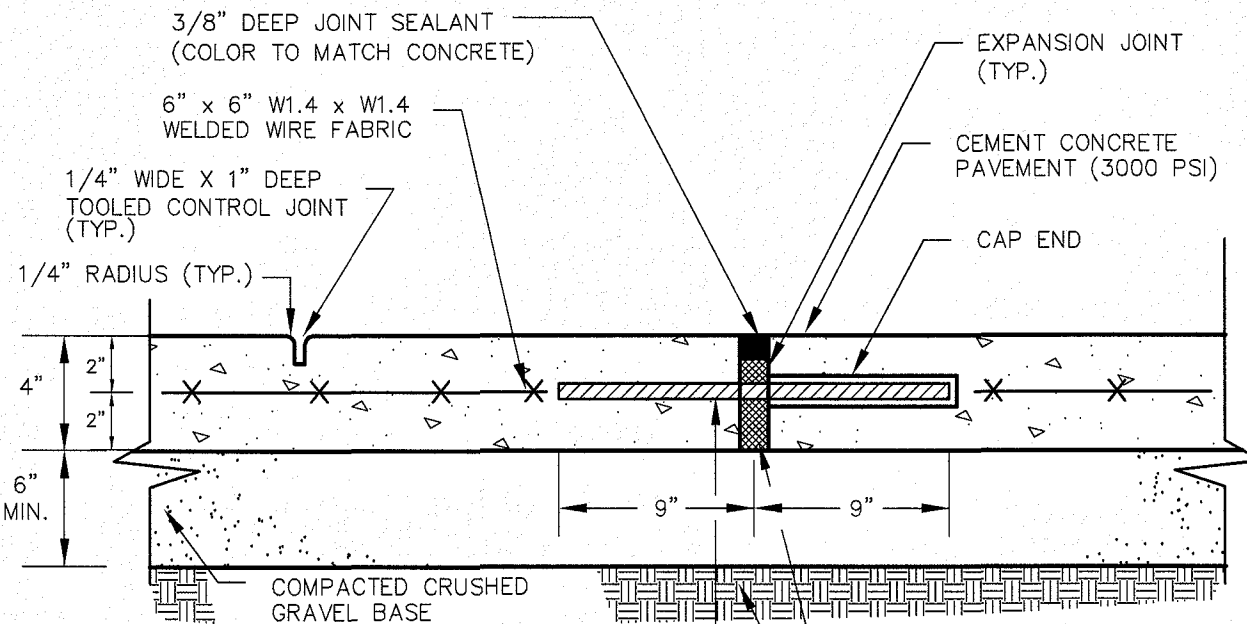
ON-SITE PAVEMENT MARKING DETAILS
NOT TO SCALE



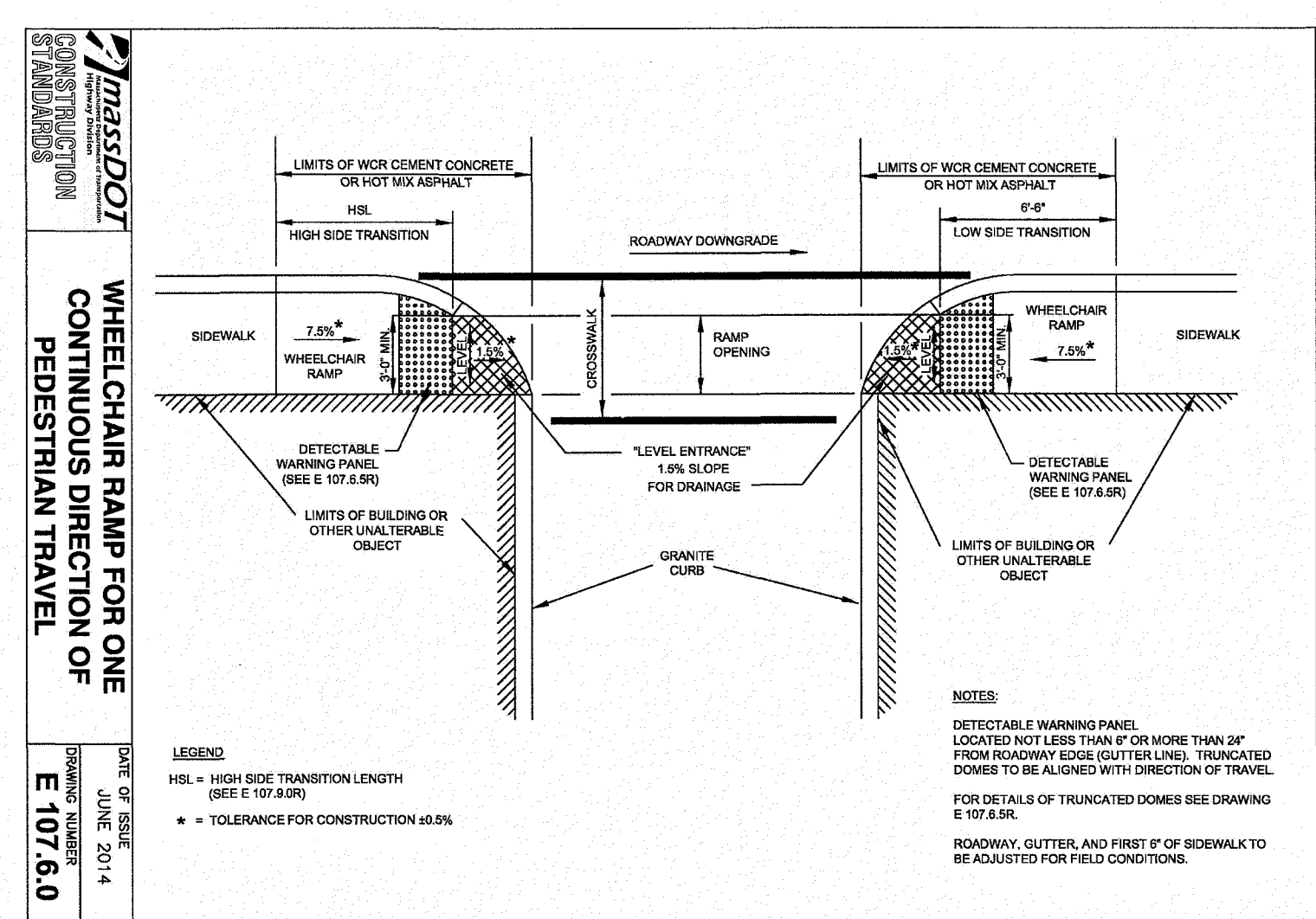
FREESTANDING SIGN DETAIL
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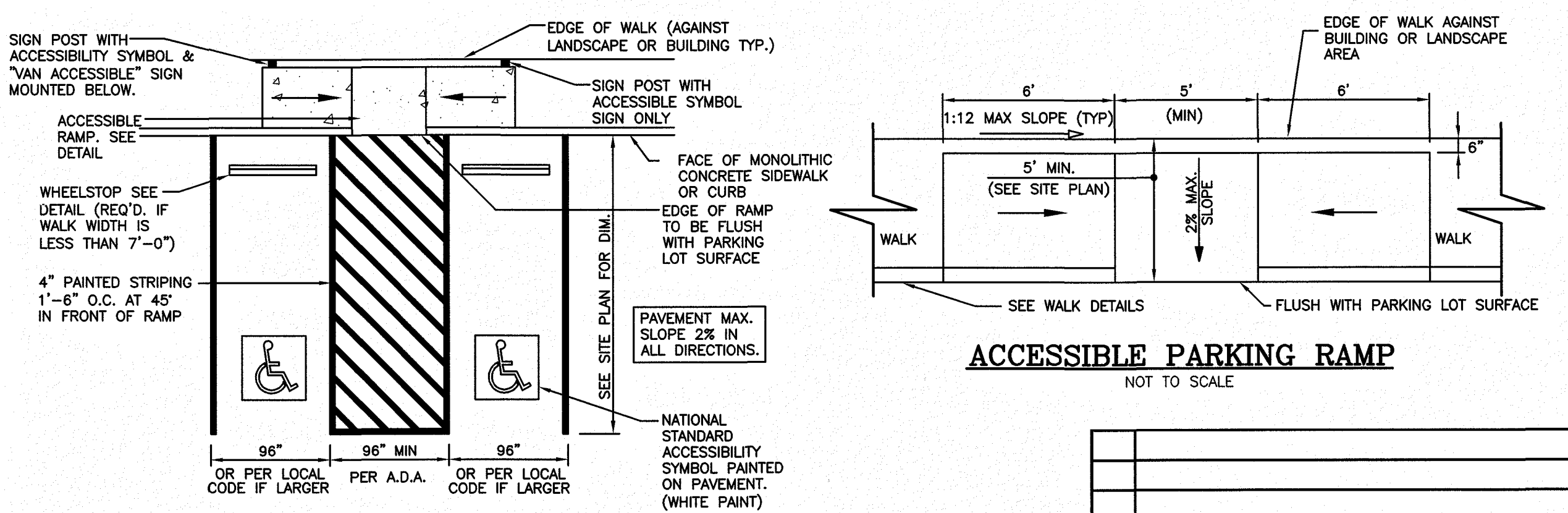
VERTICAL CONCRETE CURB DETAIL- ON SITE
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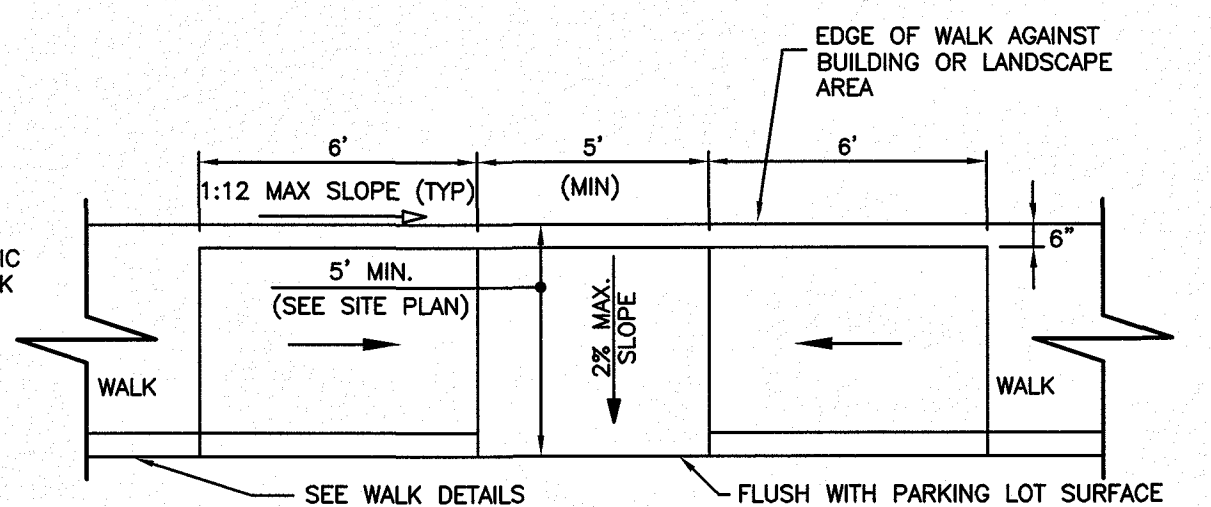
CEMENT CONCRETE SIDEWALK - ON SITE SECTION AND JOINT DETAILS
NOT TO SCALE



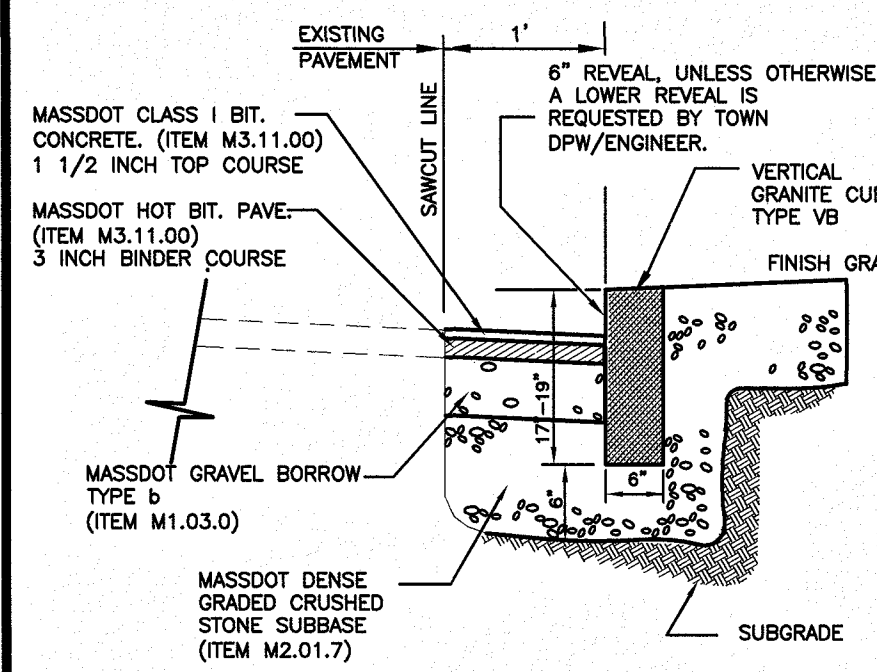
MASSDOT WHEEL CHAIR RAMP FOR ONE CONTINUOUS DIRECTION OF PEDESTRIAN TRAVEL
E 107.6.0



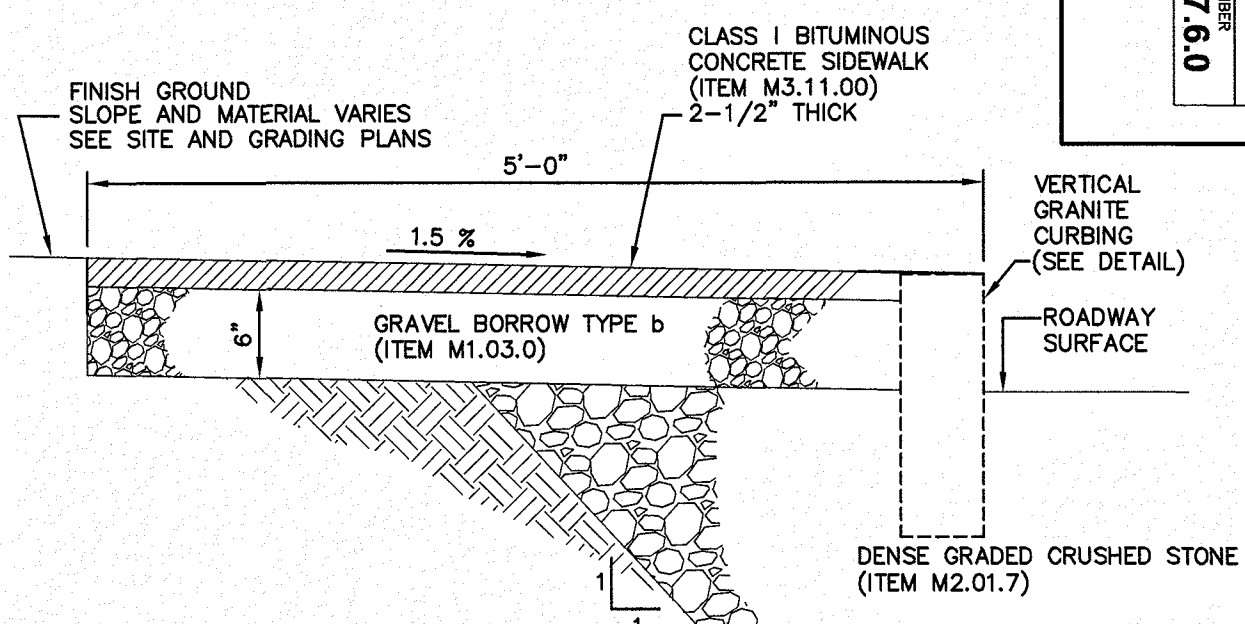
ACCESSIBLE PARKING STALLS
NOT TO SCALE



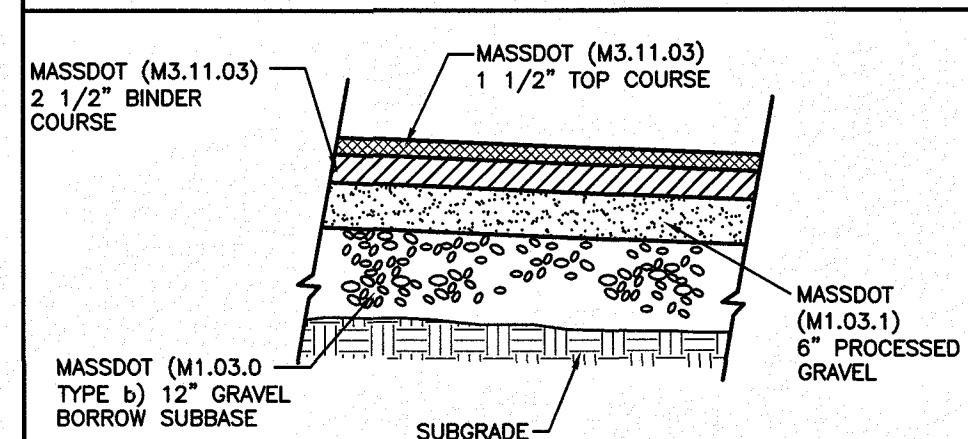
ACCESSIBLE PARKING RAMP
NOT TO SCALE



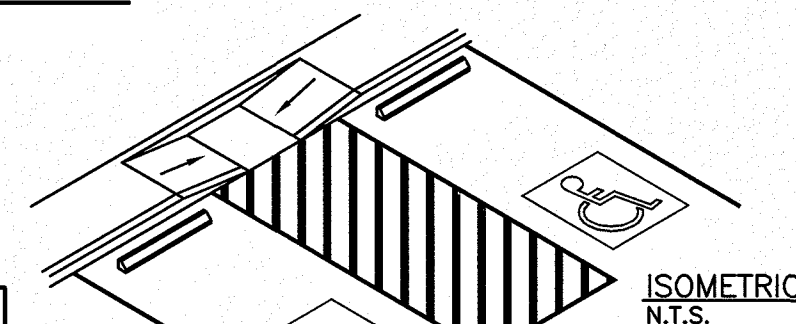
VERTICAL GRANITE CURB SECTION IN R.O.W.
NOT TO SCALE




BITUMINOUS CONCRETE SIDEWALK DETAIL
NOT TO SCALE

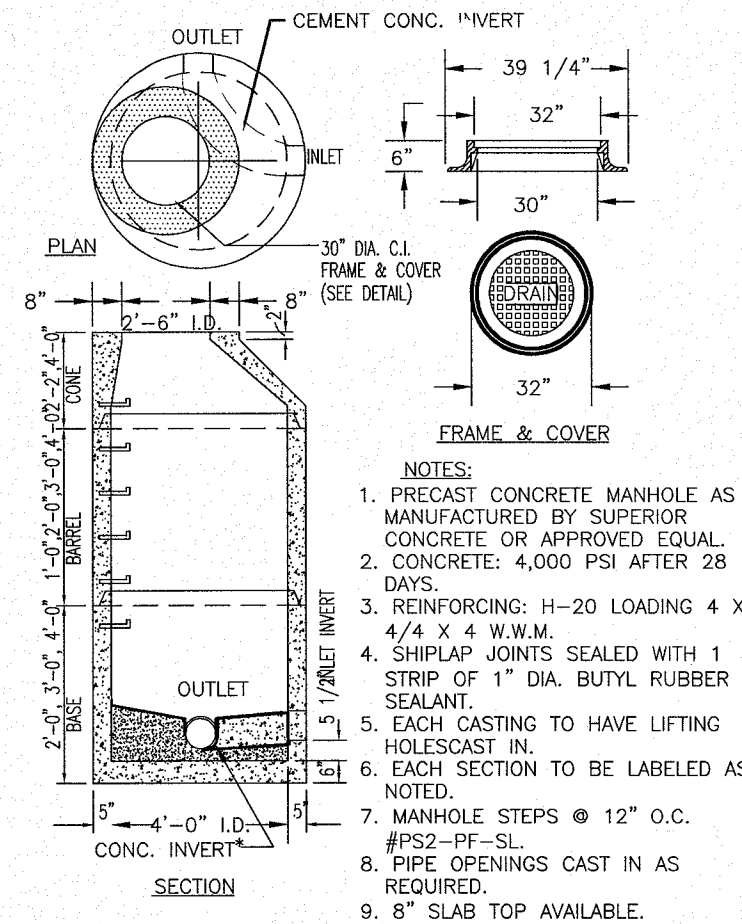


ON-SITE PAVEMENT DETAIL
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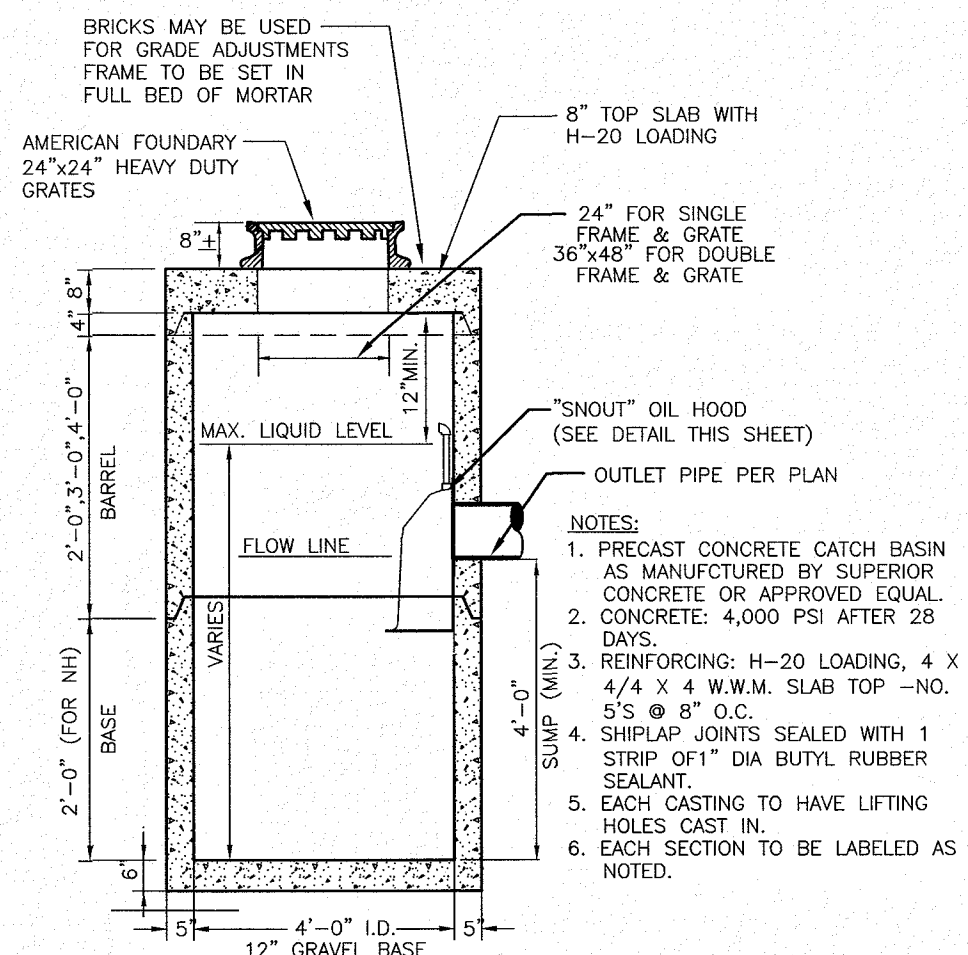


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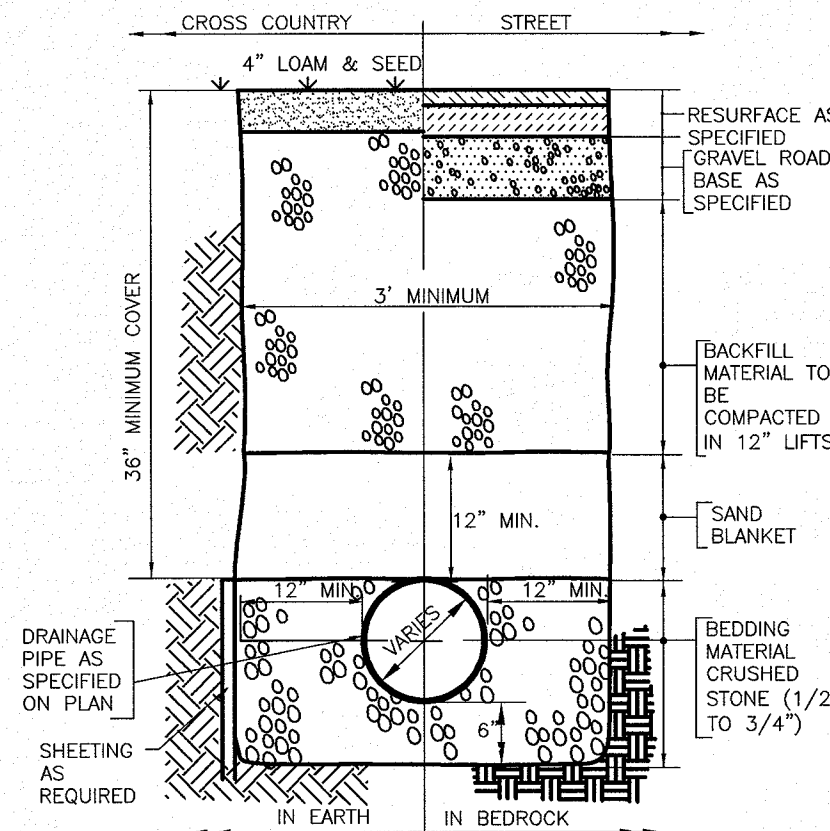
NO.	DESCRIPTION	BY	DATE
REVISIONS			
DETAIL SHEET			
ASSESSORS MAP 55 LOT 94 88 WORCESTER STREET GRAFTON, MASSACHUSETTS PREPARED FOR: PETROGAS GROUP NEW ENGLAND, INC. 168 NORTH MAIN STREET ANDOVER, MASSACHUSETTS 01810			
 44 Stiles Road, Suite One Salem, New Hampshire 03079 (603) 893-0720 ENGINEERS • PLANNERS • SURVEYORS www.mhfdesign.com			
SCALE: NTS		DATE: NOVEMBER 7, 2017	
DRAWN BY: SJB		CHECKED BY: DRJ	
PROJECT NO: 408816		DRAWING NO: 4088DET.DWG	
		SHEET NO: 8 OF 10	



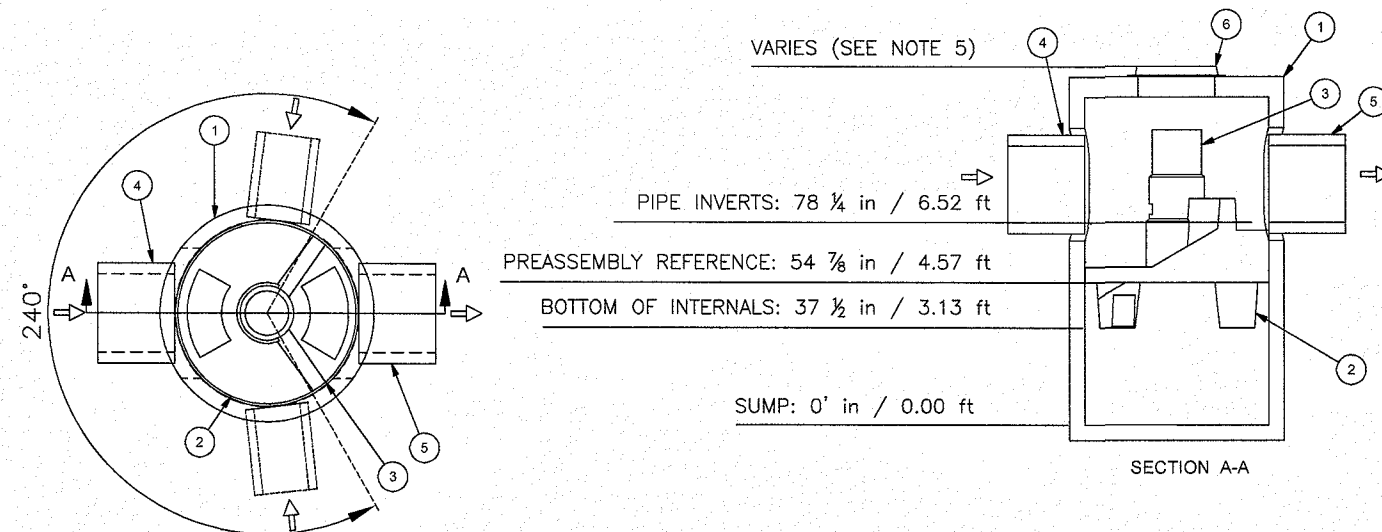
**PRECAST CONCRETE
DRAIN MANHOLE**
MAXIMUM PIPE DIAMETER 30"
NOT TO SCALE



**PRECAST CONCRETE
CATCH BASIN WITH HOOD**
NOT TO SCALE



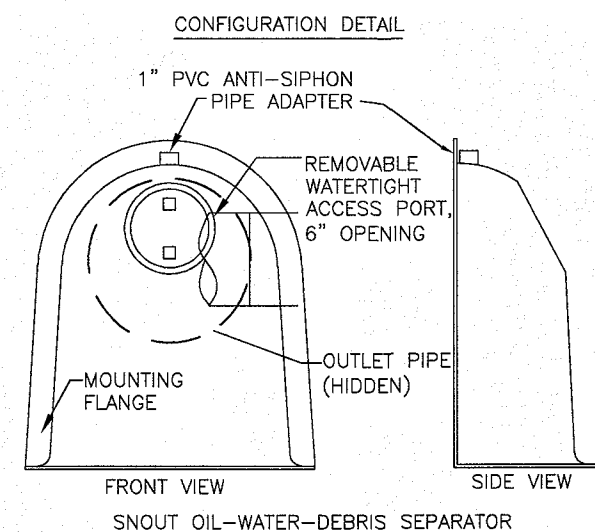
**TYPICAL TRENCH SECTION
FOR STORM DRAIN**
NOT TO SCALE



ITEM	SIZE (in)	DESCRIPTION
1	72	I.D. PRECAST MANHOLE
2		LEDGER SUPPORT
3		SEPARATION MODULE
4	30	INLET PIPE (BY OTHERS)
5	30	OUTLET PIPE (BY OTHERS)
6	30	FRAME AND COVER (OR GRATE) (ROUND)

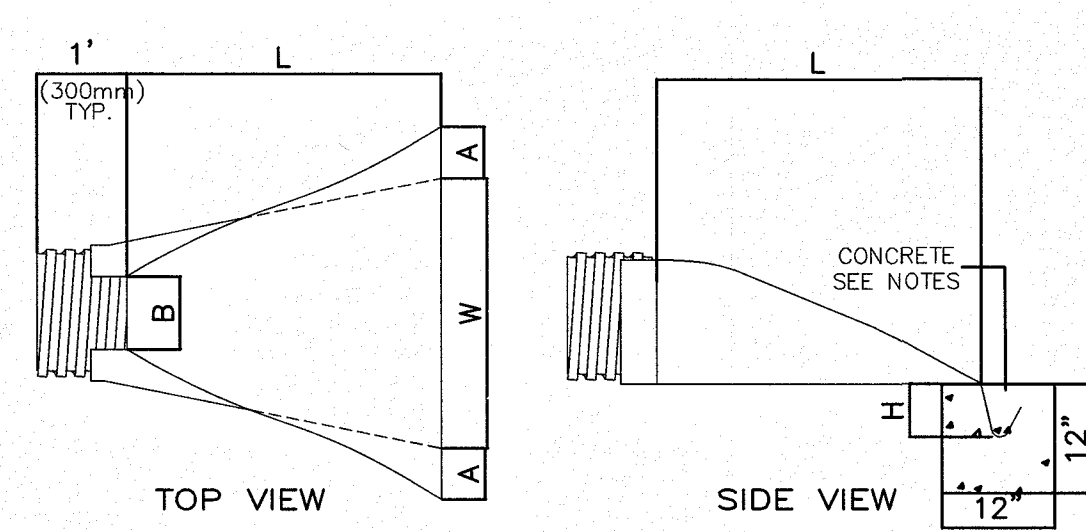
"FIRST DEFENSE" UNIT DETAIL - FD-6HC
(OR APPROVED EQUAL)
NOT TO SCALE

NOTE: CONTRACTOR SHOULD CONFIRM SYSTEM PARTS AND OBTAIN SHOP DRAWINGS FROM MANUFACTURER PRIOR TO CONSTRUCTION.



- NOTES:**
- ALL HOODS AND TRAPS FOR CATCH BASINS AND WATER QUALITY STRUCTURES SHALL BE AS MANUFACTURED BY: BEST MANAGEMENT PRODUCTS, INC. 53 MT. ARCHER RD., LYME, CT 06371 (860) 434-0277, (860) 434-3195 FAX TOLL FREE: (800) 504-8008 OR (888) 354-7585 WEB SITE: www.bestmp.com OR PRE-APPROVED EQUAL
 - ALL HOODS SHALL BE CONSTRUCTED OF A GLASS REINFORCED RESIN COMPOSITE WITH ISO GEL COAT EXTERIOR FINISH WITH A MINIMUM 0.125\"/>

SNOUT - OIL - WATER - DEBRIS SEPARATOR
NOT TO SCALE



CONSTRUCTION SPECIFICATIONS:

PREPARE BEDDING: BACKFILL MATERIAL AROUND THE END SECTION MAY BE THE SAME AS THE MATERIAL AROUND THE PIPE. PLACE A FEW INCHES OF BACKFILL MATERIAL IN THE TRENCH OR DITCH WHERE THE END SECTION WILL BE PLACED. COMPACT AND CONTOUR THIS BEDDING MATERIAL TO GENERALLY MATCH THE END SECTION, EXCAVATE AN AREA IN THE BEDDING WHERE THE TROUGH WILL BE PLACED. CHECK TO MAKE SURE THAT THE INVERT OF THE END SECTION MATCHES THE INVERT OF THE PIPE AND THAT THE END SECTION IS LEVEL WITH THE TRENCH OR DITCH BOTTOM.

SECURE THE END SECTION: SLIP THE STAINLESS STEEL ROD THROUGH THE PRE-DRILLED HOLES AT THE TOP OF THE COLLAR. THE ROD SHOULD BE BETWEEN THE CROWNS OF THE TWO PIPE CONNECTIONS. PLACE A WASHER ON EITHER END OF THE ROD. PLACE A NUT ON EITHER END OF THE ROD AND TIGHTEN WITH A WRENCH.

SECURE THE TIE TROUGH: TO PREVENT WASHOUTS FROM HIGH VELOCITY FLOW, IT IS RECOMMENDED THAT THE TROUGH BE SECURED WITH CONCRETE. POUR CONCRETE IN THE TROUGH UP TO THE LEVEL OF THE TRENCH OR DITCH BOTTOM AND ALONG THE ENTIRE LENGTH OF THE TROUGH.

FINISH BACKFILL: SHOVEL BACKFILL AROUND THE END SECTION IN 6 TO 9 INCH LAYERS EQUALLY ON BOTH SIDES, KNIFING IT TO ELIMINATE VOIDS. TAMP WITH A SMALL-FACED COMPACTOR OR OTHER EQUIPMENT SUITABLE FOR SMALL AREAS. CONTINUE PLACING, KNIFING, AND COMPACTING BACKFILL LAYERS TO THE TOP OF THE END SECTION TO SEAT IT WELL INTO THE BACKFILL.

**FLARED END SECTION
HIGH DENSITY POLYETHYLENE (HDPE)**
NOT TO SCALE

MAINTENANCE
THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM. IF THE RIPRAP HAS BEEN DISPLACED, UNDERMINED OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE OUTLET PROTECTION APRON.

OUTLET	Do	Lo	W ₅₀	W ₆₀	d ₅₀	d
FES#1	15"	13"	4.5"	9"	3"	7"

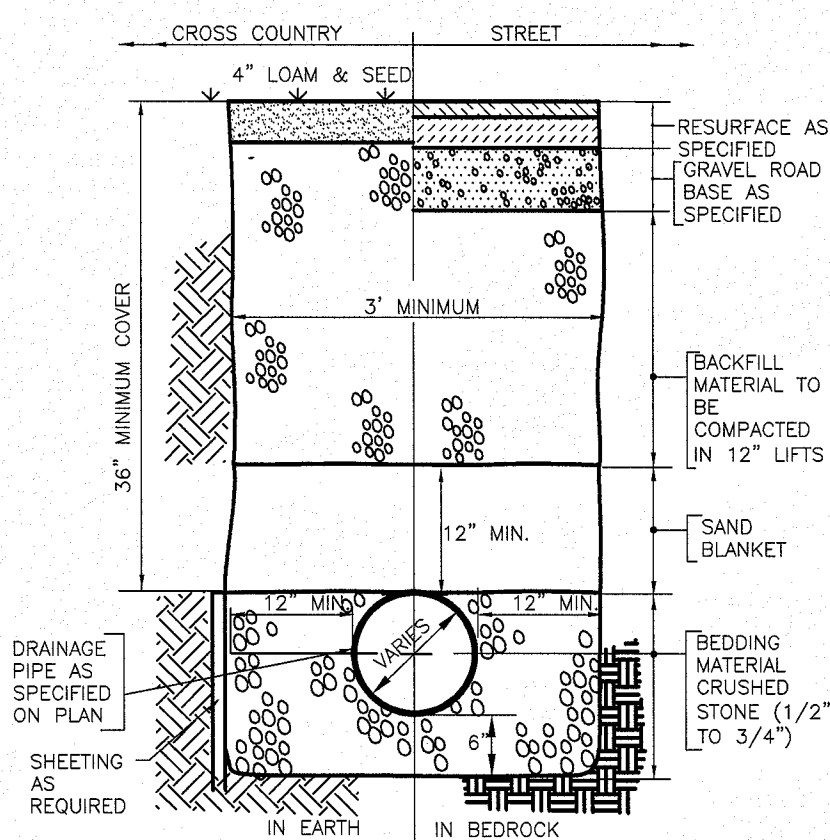
% OF WEIGHT SMALLER THAN THE GIVEN SIZE	SIZE OF STONE IN INCHES
100	4.5 TO 6.0
85	3.9 TO 5.4
50	3.0 TO 4.5
15	0.9 TO 1.5

CONSTRUCTION NOTES:

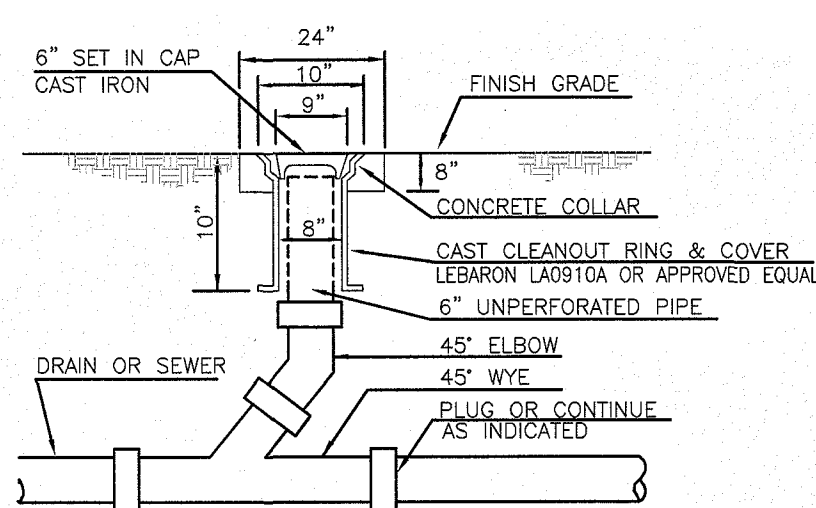
- THE SUBGRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIPRAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
- THE ROCK OR GRAVEL USED FOR FILTER OR RIPRAP SHALL CONFORM TO THE SPECIFIED ROCK RIP RAP GRADATION.
- GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIPRAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
- STONE FOR THE RIPRAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
- THE MEDIAN STONE DIAMETER FOR THE RIPRAP APRON IS 450, FIFTY PERCENT BY WEIGHT OF THE RIPRAP MIXTURE SHALL BE SMALLER THAN THE MEDIAN STONE SIZE. THE LARGEST STONE SIZE IN THE MIXTURE SHALL BE 1.5 450.

FORMULAS USED (REFERENCE NHDES HANDBOOK, PAGES 7-114, 7-115 & 7-130)

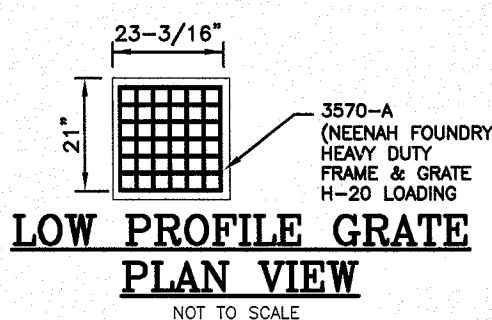
OUTLET PROTECTION-FLAT DETAIL



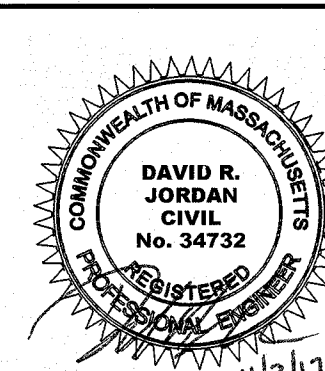
**TYPICAL TRENCH SECTION
FOR STORM DRAIN**
NOT TO SCALE



TYPICAL CLEANOUT
NOT TO SCALE



**LOW PROFILE GRATE
PLAN VIEW**
NOT TO SCALE



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SCALE: NTS	DATE: NOVEMBER 7, 2017	DRAWING NO. 4088DET.DWG
DRAWN BY: SJB	CHECKED BY: DRJ	PROJECT NO. 408816
		SHEET NO. 9 OF 10

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot No. 88 Worcester Street, Grafton, MA

On-site Review

Deep Hole Number: TP-1 Date: 8/10/17 Time: AM Weather: Sunny 80s

Location (identify on site plan)

Land Use Commercial Slope (%) 0-5% Surface Stones None

Vegetation Landscaping

Landform _____

Position on landscape (sketch on back)

Distances from:
Open Water Body >25 feet Drainage way >5 feet
Possible Wet Area >25 feet Property Line >10 feet
Drinking Water Well >100 feet Other _____

DEEP OBSERVATION HOLE LOG*

Depth from Surface (Inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-60"	Fill	Mixed Soils/Urban Fill			
60-120"	C	Sand	2.5y 5/3		

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic): Till Depth to Bedrock: >120"

Depth to Groundwater: 96" Standing Water in Hole: 96" Weeping from pit face: 96"

Estimated Seasonal High Groundwater: 96"

DEP APPROVED FORM - 12/07/95

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot No. 88 Worcester Street, Grafton, MA

On-site Review

Deep Hole Number: TP-2 Date: 8/10/17 Time: AM Weather: Sunny 80s

Location (identify on site plan)

Land Use Commercial Slope (%) 0-5% Surface Stones None

Vegetation Landscaping

Landform _____

Position on landscape (sketch on back)

Distances from:
Open Water Body >25 feet Drainage way >5 feet
Possible Wet Area >25 feet Property Line >10 feet
Drinking Water Well >100 feet Other _____

DEEP OBSERVATION HOLE LOG*

Depth from Surface (Inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0-65"	Fill	Mixed Soils/Urban Fill			
65-120"	C	Sand	2.5y 5/3		

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

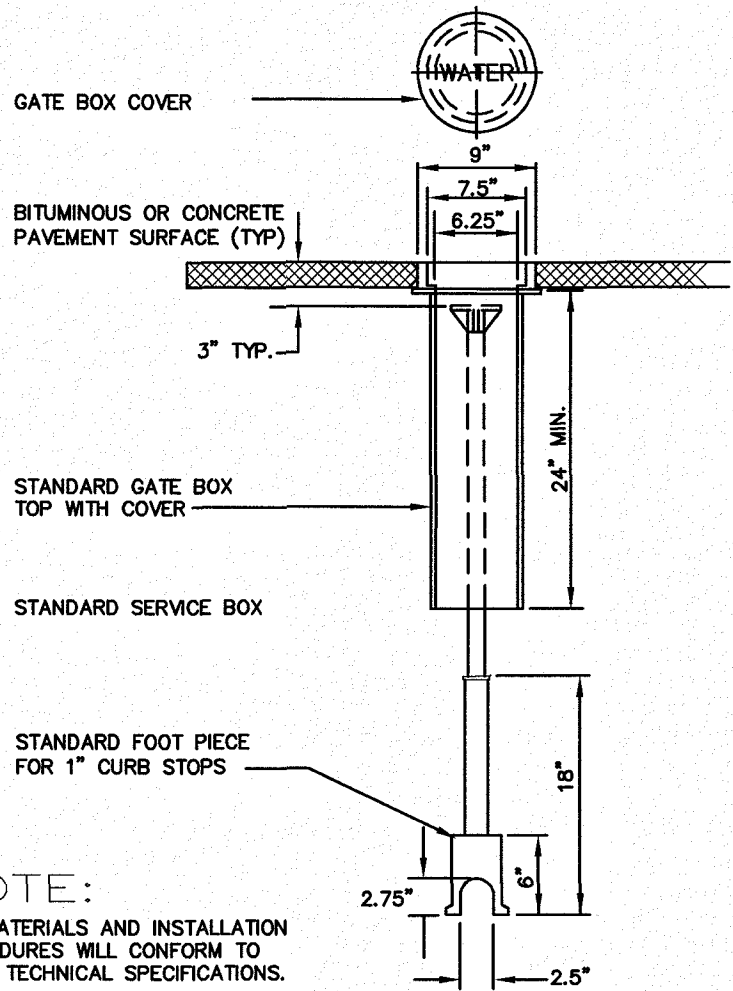
Parent Material (geologic): Till Depth to Bedrock: >120"

Depth to Groundwater: 96" Standing Water in Hole: 96" Weeping from pit face: 96"

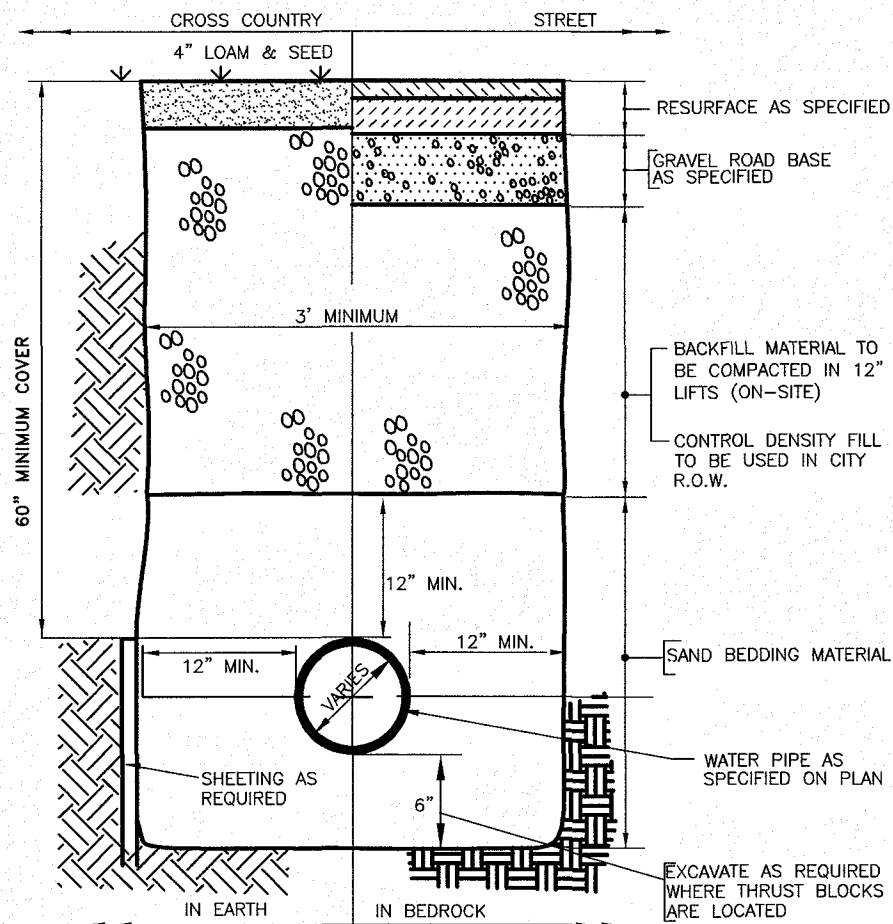
Estimated Seasonal High Groundwater: 96"

DEP APPROVED FORM - 12/07/95

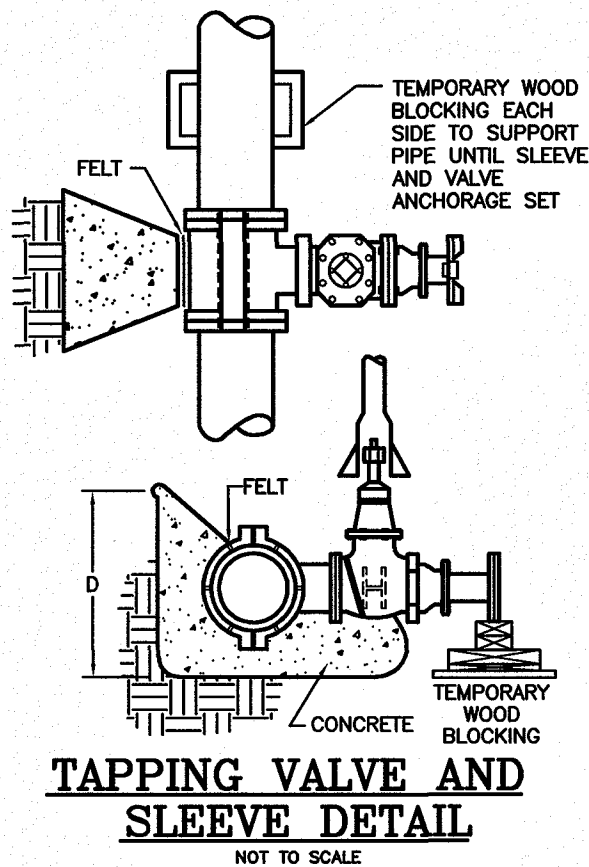
TEST PIT LOGS



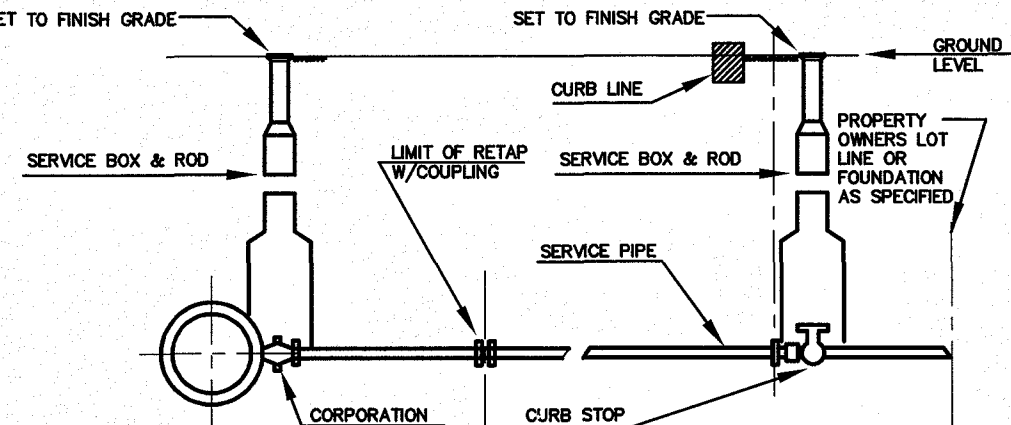
SERVICE BOX INSTALLATION IN PAVEMENT
NOT TO SCALE



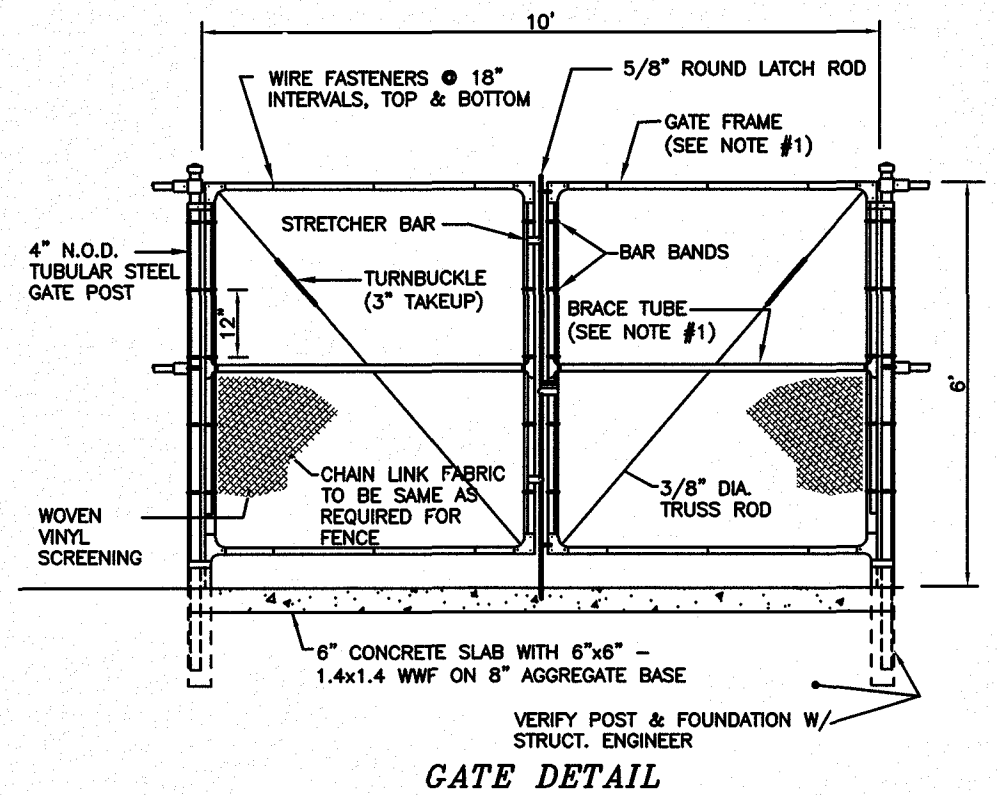
TYPICAL TRENCH SECTION
FOR WATER SERVICE
NOT TO SCALE



TAPPING VALVE AND
SLEEVE DETAIL
NOT TO SCALE

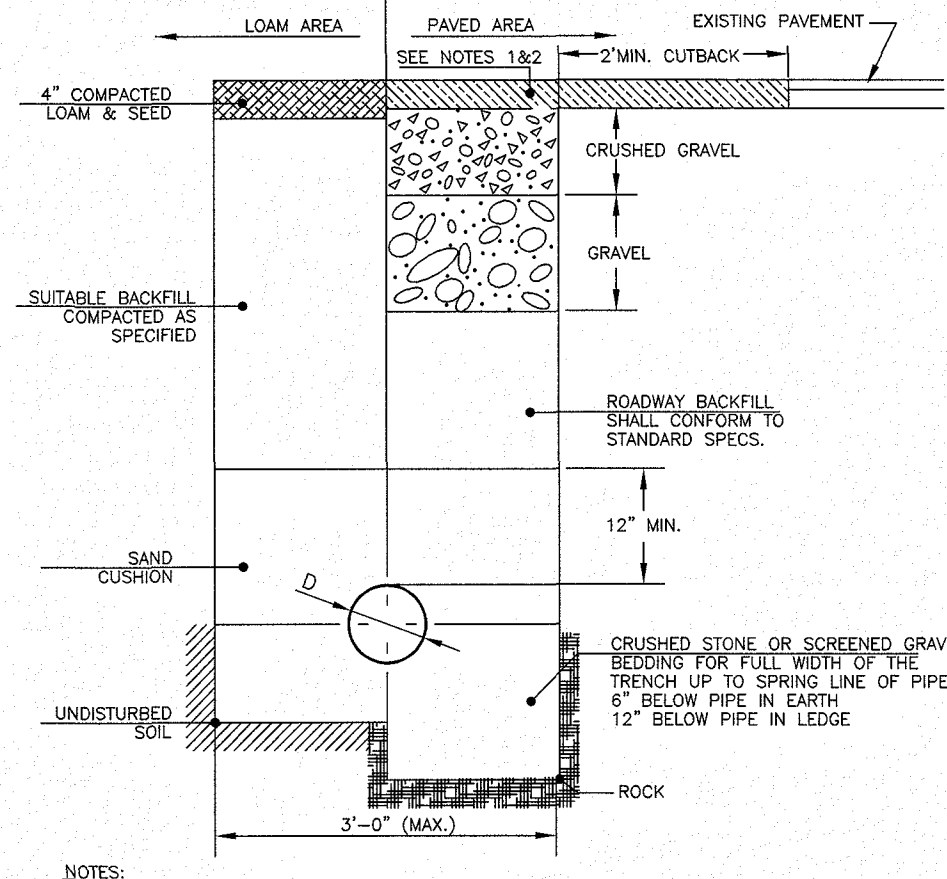
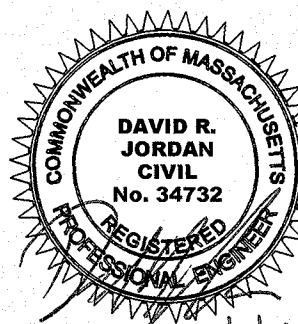


TYPICAL WATER SERVICE CONNECTION
NOT TO SCALE



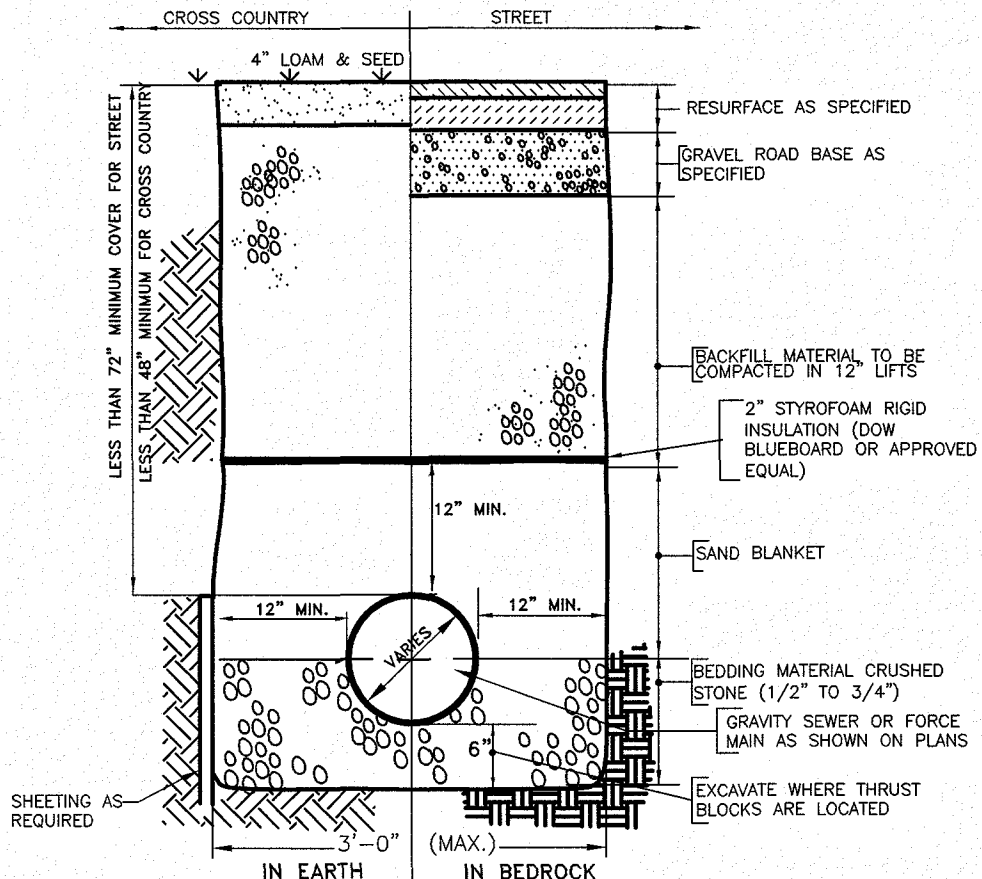
NOTE:
1) NOMINAL OUTSIDE DIAMETER (N.O.D.) OF GATE FRAME AND BRACE TUBE TO BE 1.66" UP TO 6" IN WIDTH, AND 1.90" IF OVER 6" IN WIDTH.

NO.	DESCRIPTION	BY	DATE
	REVISIONS		
	DETAIL SHEET		
	ASSESSORS MAP 55 LOT 94 88 WORCESTER STREET GRAFTON, MASSACHUSETTS PREPARED FOR: PETROGAS GROUP NEW ENGLAND, INC. 168 NORTH MAIN STREET ANDOVER, MASSACHUSETTS 01810		
	MHF Design Consultants, Inc.		
	44 Stiles Road, Suite One Salem, New Hampshire 03079 (603) 893-0720 ENGINEERS • PLANNERS • SURVEYORS www.mhfdesign.com		
	SCALE: NTS	DATE: NOVEMBER 7, 2017	DRAWING NO. 4088DET.DWG
	DRAWN BY: SJB	CHECKED BY: DRJ	PROJECT NO. 408816
			SHEET NO. 10 OF 10

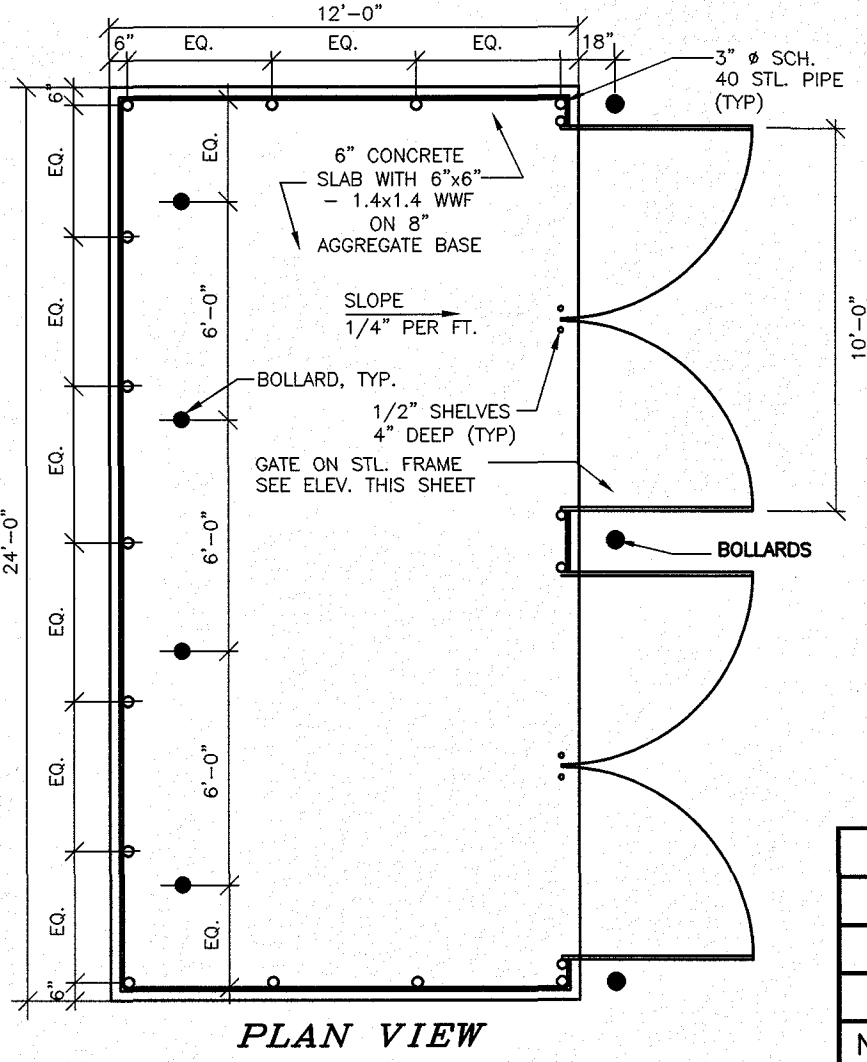


- NOTES:
- 1) PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS. DEPTH FOR BITUMINOUS PAVEMENT SHALL BE EQUAL TO EXISTING PAVEMENT WITH 3" MINIMUM. (1" WEARING, 2" BASE).
 - 2) NEW ROADWAY CONSTRUCTION SHALL CONFORM TO SUBDIVISION SPECIFICATIONS.
 - 3) IN LIEU OF THE 12" GRAVEL COURSE AND 9" OF CRUSHED GRAVEL, 18" OF CRUSHED GRAVEL OR RECLAIMED STABILIZED BASE MAY BE USED AS A BASE FOR THE PAVEMENT REPAIR.
 - 4) MATERIAL SHALL BE REPLACED IN KIND WHENEVER POSSIBLE.
 - 5) A MINIMUM 2' CUTBACK IS REQUIRED AT THE TOP OF THE TRENCH WALL OVER UNDISTURBED MATERIAL.

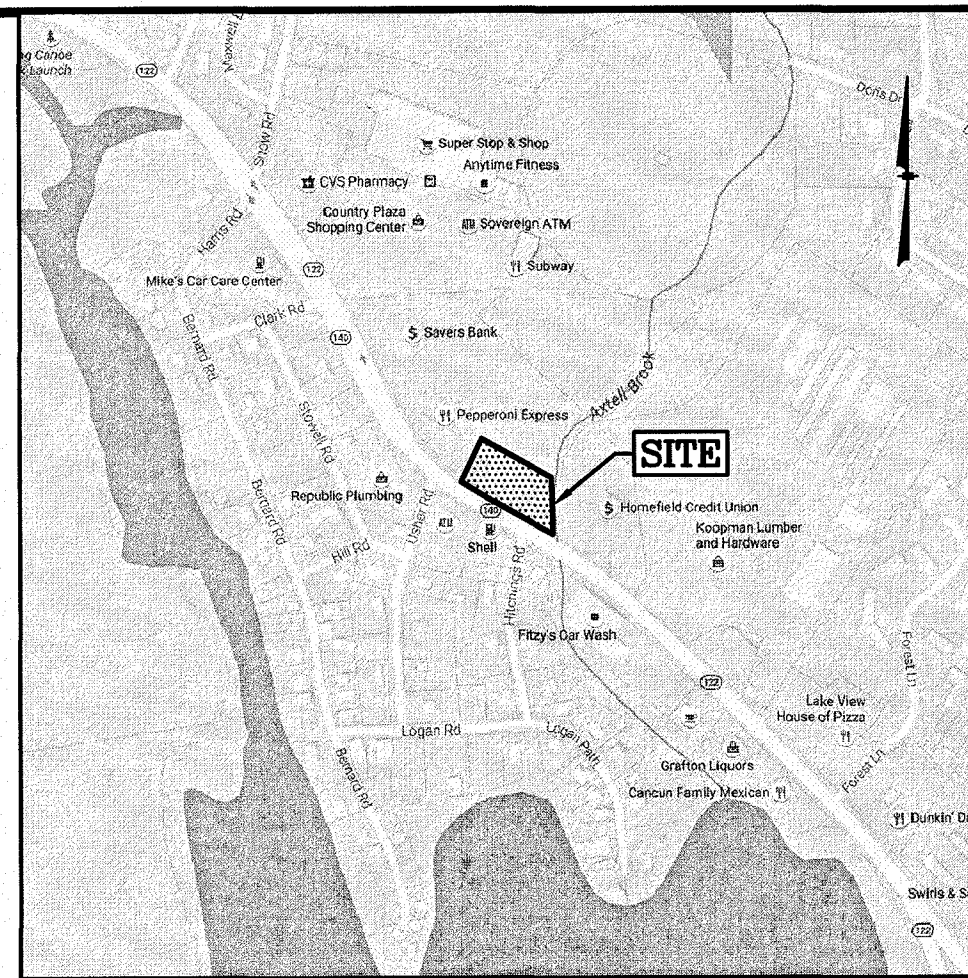
TYPICAL SEWER TRENCH DETAIL
NOT TO SCALE



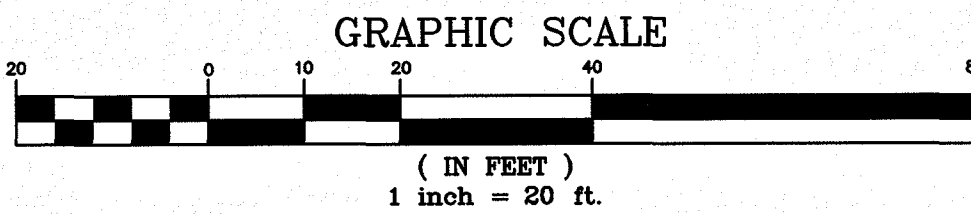
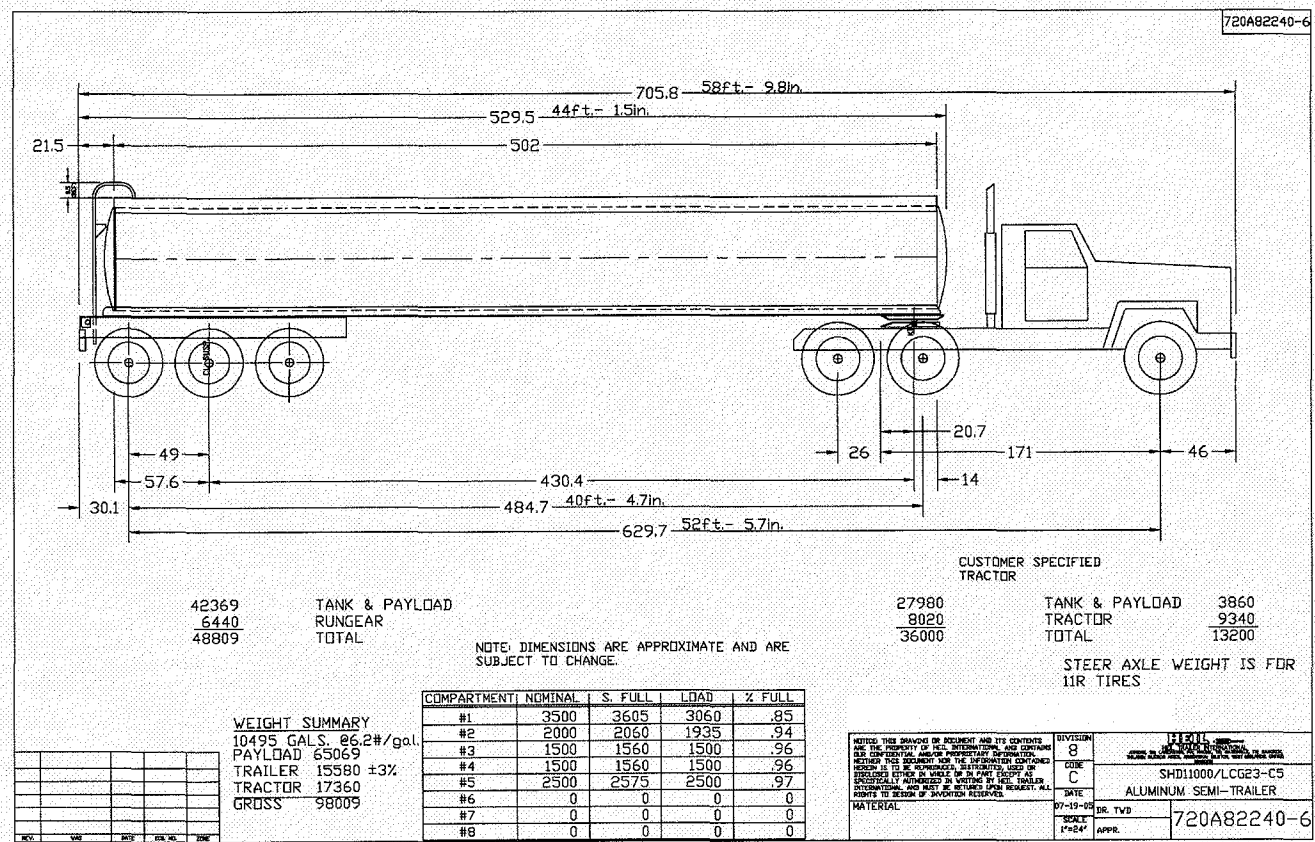
TYPICAL TRENCH SECTION
FOR SANITARY SEWER SERVICE
WITH LESS THAN 6' OF COVER
NOT TO SCALE



CHAINLINK TRASH ENCLOSURE
FOR GAS STATION
NOT TO SCALE



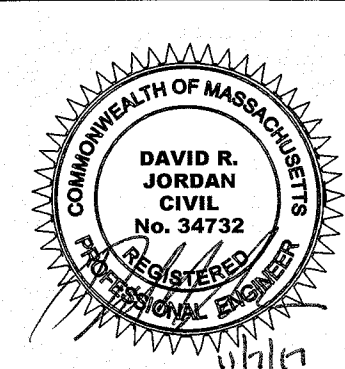
LOCATION MAP
(NOT TO SCALE)



NO.	DESCRIPTION	BY	DATE

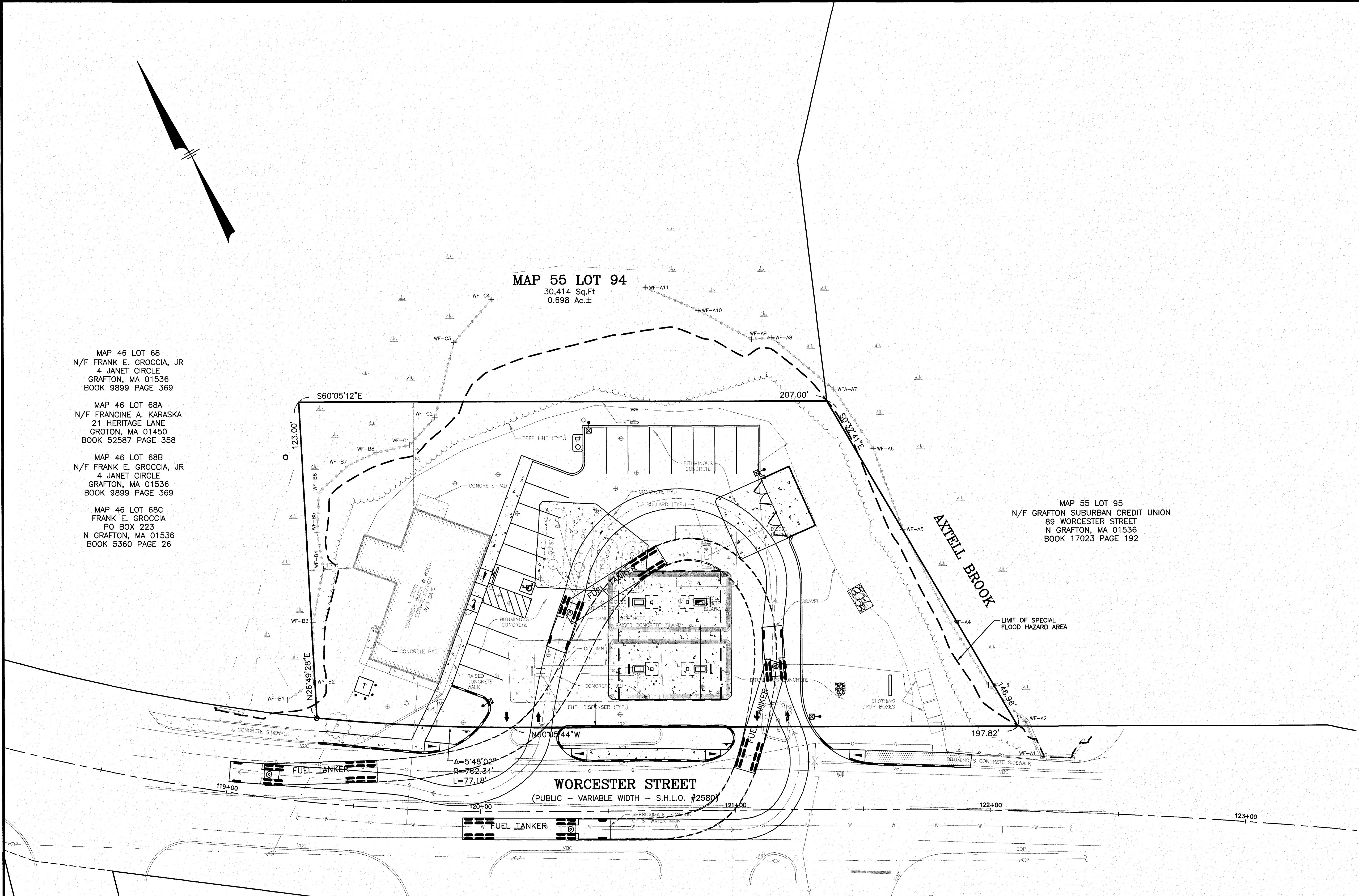
TRUCK TURN PLAN

ASSESSORS MAP 55 LOT 94
88 WORCESTER STREET
GRAFTON, MASSACHUSETTS
PREPARED FOR:
PETROGAS GROUP NEW ENGLAND, INC.
168 NORTH MAIN STREET
ANDOVER, MASSACHUSETTS 01810



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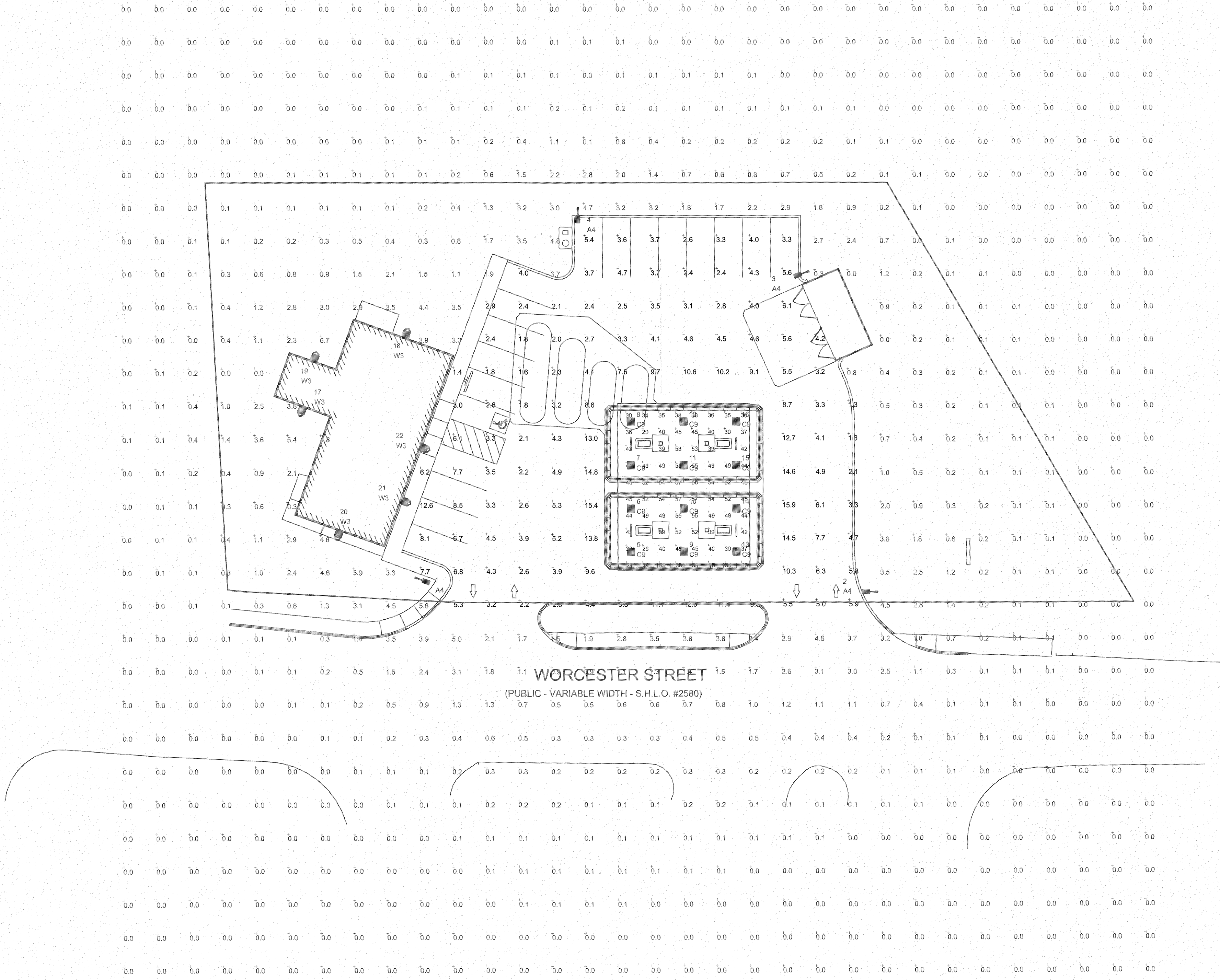
SCALE: 1"=20'	DATE: NOVEMBER 7, 2017	DRAWING NO. 4088SP.DWG
DRAWN BY: SJB	CHECKED BY: DRJ	PROJECT NO. 408816
		SHEET NO. 1 OF 1



LEGEND

VBC	VERTICAL BITUMINOUS CURB	UTILITY POLE
VCC	VERTICAL CONCRETE CURB	DRAIN MANHOLE
VGC	VERTICAL GRANITE CURB	SEWER MANHOLE
SSWL	OVERHEAD SERVICE WIRES	GAS METER
W	SINGLE SOLID WHITE LINE	SPOT ELEVATION
G	WATER LINE	BOLLARD
WETLAND LINE	GAS LINE	SIGN
90	WETLAND LINE	OBSERVATION WELL
CHAIN LINK FENCE	CONTOUR ELEVATION	TREE





ALL AREA LIGHTS SHALL BE MOUNTED TO 15 FT. POLES ON 2 FT. CONCRETE BASES.

LUMINAIRE LOCATION SUMMARY		
LUM NO	LABEL	MOUNTING HEIGHT
1	A4	17
2	A4	17
3	A4	17
4	A4	17
5	C9	15.5
6	C9	15.5
7	C9	15.5
8	C9	15.5
9	C9	15.5
10	C9	15.5
11	C9	15.5
12	C9	15.5
13	C9	15.5
14	C9	15.5
15	C9	15.5
16	C9	15.5
17	W3	12
18	W3	12
19	W3	12
20	W3	12
21	W3	12
22	W3	12






NORTH

GRAPHIC SCALE



FOOTCANDLE LEVELS CALCULATED AT GRADE USING INITIAL LUMEN VALUES					
LABEL	AVG	MAX	MIN	AVG/MIN	MAX/MIN
SITE PAVED AREA	5.50	15.9	1.3	4.23	12.23
UNDEFINED	0.45	6.7	0.0	N.A.	N.A.
UNDER CANOPY	43.53	58	29	1.50	2.00

LUMINAIRE SCHEDULE									
SYMBOL	QTY	LABEL	ARRANGEMENT	LUMENS	LLF	ARR. WATTS	TOTAL WATTS	MANUFACTURER	DESCRIPTION
	4	A4	SINGLE	10443	1.030	101	404	CREE, INC.	BXSP-B-HT-4ME-B-57K-UL-XX
	12	C9	SINGLE	12406	1.030	96.31	1155.72	CREE, INC.	CPY250-B-DM-D-B-UL-XX-57K
	6	W3	SINGLE	4031	1.030	42.96	257.76	CREE, INC.	XSPWA03MC-UX

REV.	BY	DATE	DESCRIPTION
R1	DAR	11/2/17	REVISED PER UPDATED SITE PLAN AND CANOPY DESIGN.

PERSONS USING THIS PROGRAM ARE ADVISED THAT THIS PROGRAM MAY CONTAIN ERRORS WHICH RED LEONARD ASSOCIATES, INC. OR ITS SUBSIDIARIES HAVE NOT OBSERVED. IN ADDITION, THE USE OF THIS PROGRAM TO ASSESS THE LAYOUT OF LIGHTING AND LUMINAIRE MATERIAL QUANTITIES IS NOT INTENDED TO REMOVE THE RESPONSIBILITY OF THE USER TO VERIFY THE COMPETENCE OF ANY USE OF MATERIALS AND EQUIPMENT. RED LEONARD ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THIS PROGRAM OR FOR ANY CONSEQUENCES ARISING FROM THE USE OF THIS PROGRAM. THE USER IS RESPONSIBLE FOR VERIFYING COMPLIANCE WITH ANY APPLICABLE ELECTRICAL, LIGHTING, AND ENERGY CODES.

SCALE: 1" = 20'
LAYOUT BY: DAR
DATE: 7/26/17
DWG SIZE: D

PROJECT NAME:
PETROGAS
GRAFTON, MA
DRAWING NUMBER:
RL-4770-S1-R1



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REVISIONS:



NUMBER:	REMARKS:	DATE:

ISSUED FOR:	DATE ISSUED:
CLIENT USE	10/24/17

PROJECT TITLE:



applegreen
N.Grafton, MA

88 WORCESTER STREET
GRAFTON, MA

DRAWING TITLE:

PROPOSED ELEVATIONS
(rev 9-28-17)

PERMIT DWG DATE: XX-XX-XX	PROJECT NUMBER: 17-14-001
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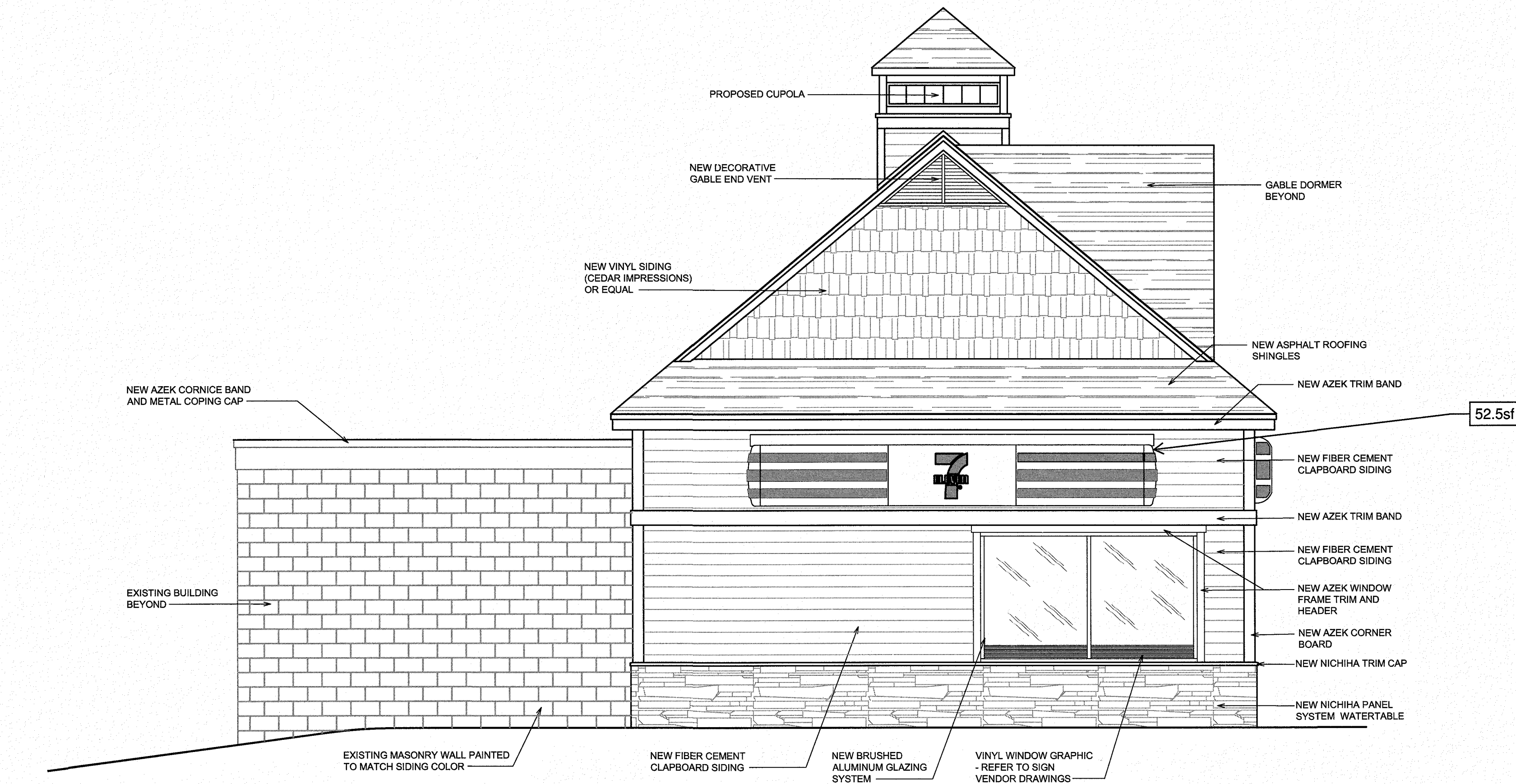
DRAWN BY: JAS	CHECKED BY: BCM
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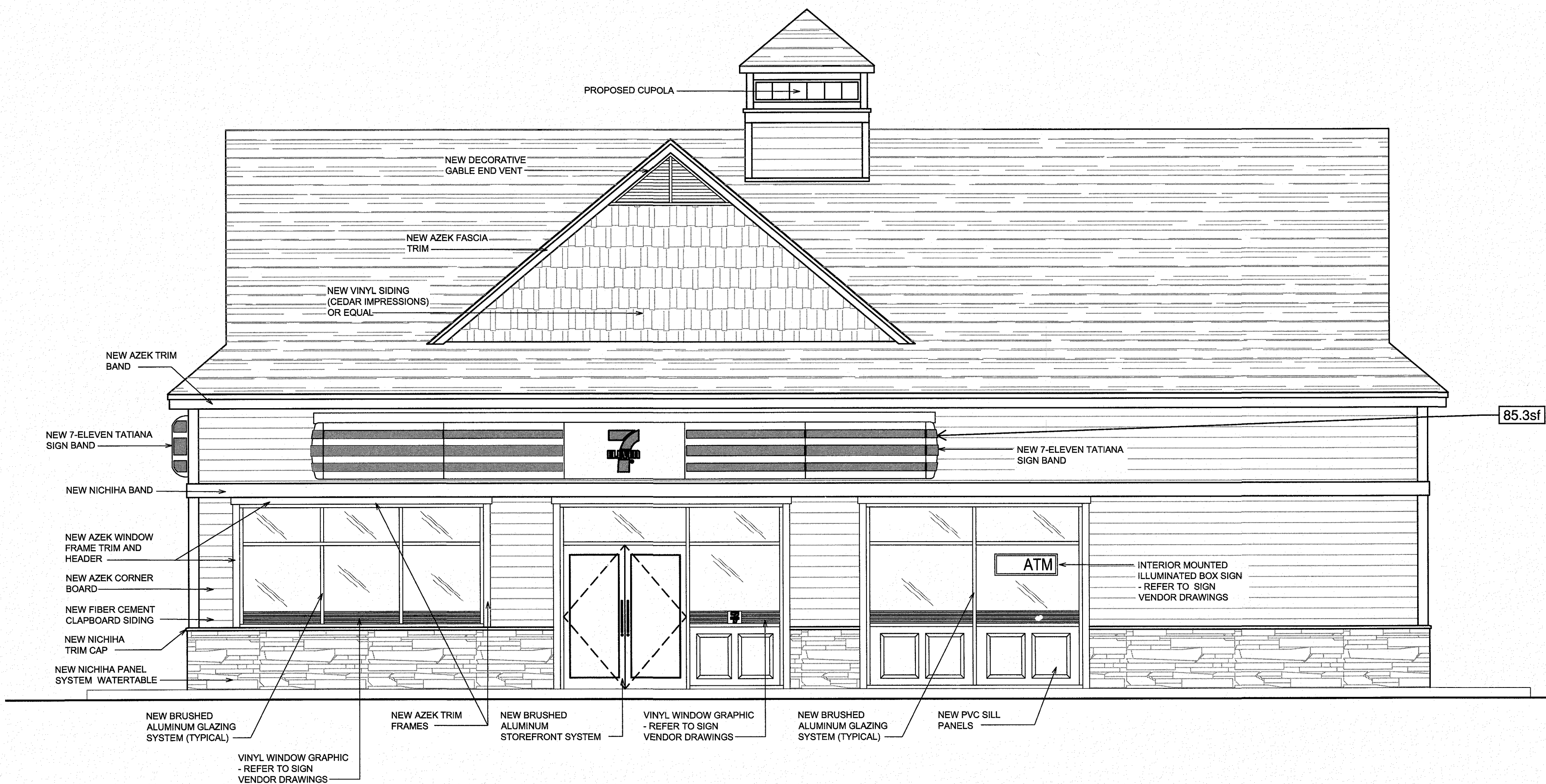
A101

MHF PROJECT NO. 408816 SHEET 1 OF 2

GENERAL NOTE:
EXTERIOR SIGNAGE SHOWN IS
FOR REFERENCE ONLY - TENANT
SIGN VENDOR TO VERIFY ALL
LOCAL CODES, ORDINANCES AND
REQUIREMENTS



PROPOSED SIDE ELEVATION 1/4" = 1'-0" 1



PROPOSED FRONT ELEVATION 1/4" = 1'-0" 2

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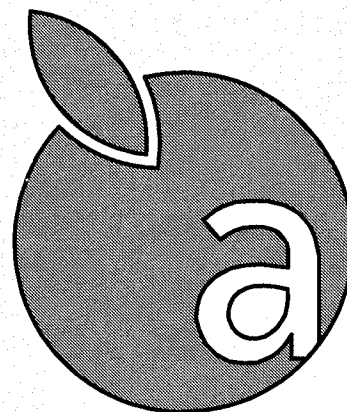
REVISIONS:



NUMBER:	REMARKS:	DATE:

ISSUED FOR:	DATE ISSUED:
CLIENT USE	10/24/17

PROJECT TITLE:



applegreen
N. Grafton, MA

88 WORCESTER STREET
GRAFTON, MA

DRAWING TITLE:

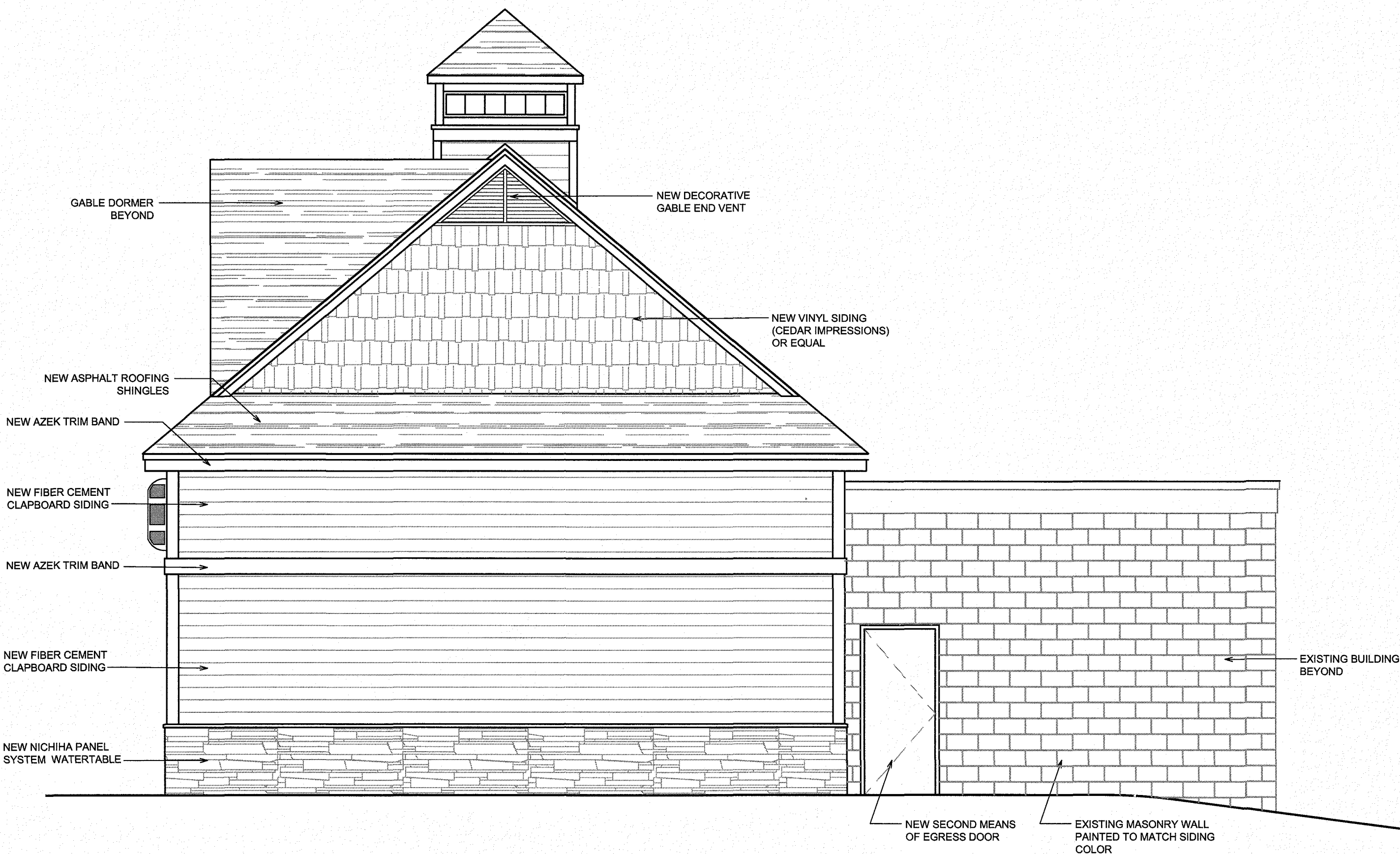
PROPOSED ELEVATIONS
(rev 9-28-17)

PERMIT DWG DATE: XX-XX-XX	PROJECT NUMBER: 17-14-001
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DRAWN BY: JAS	CHECKED BY: BCM
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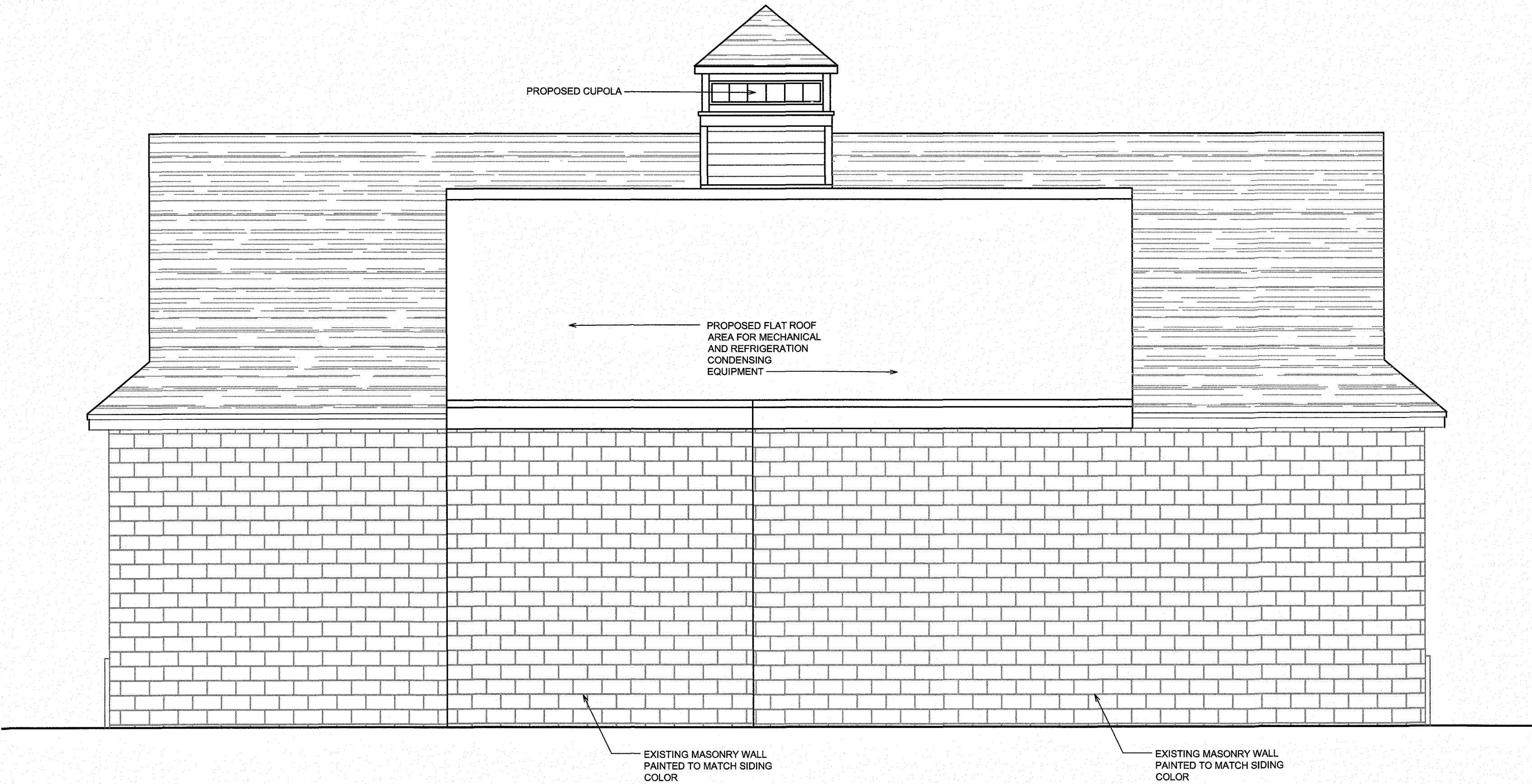
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A102

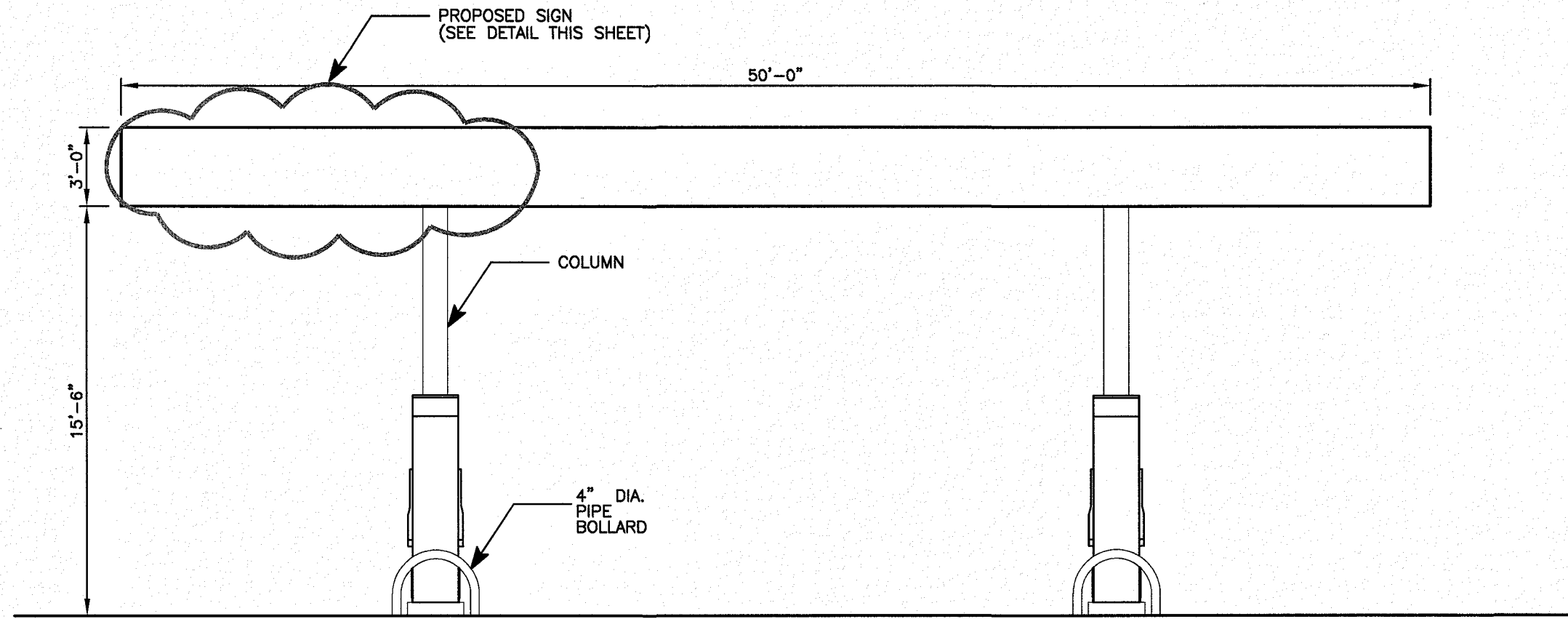


GENERAL NOTE:
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LOCAL CODES, ORDINANCES AND
REQUIREMENTS

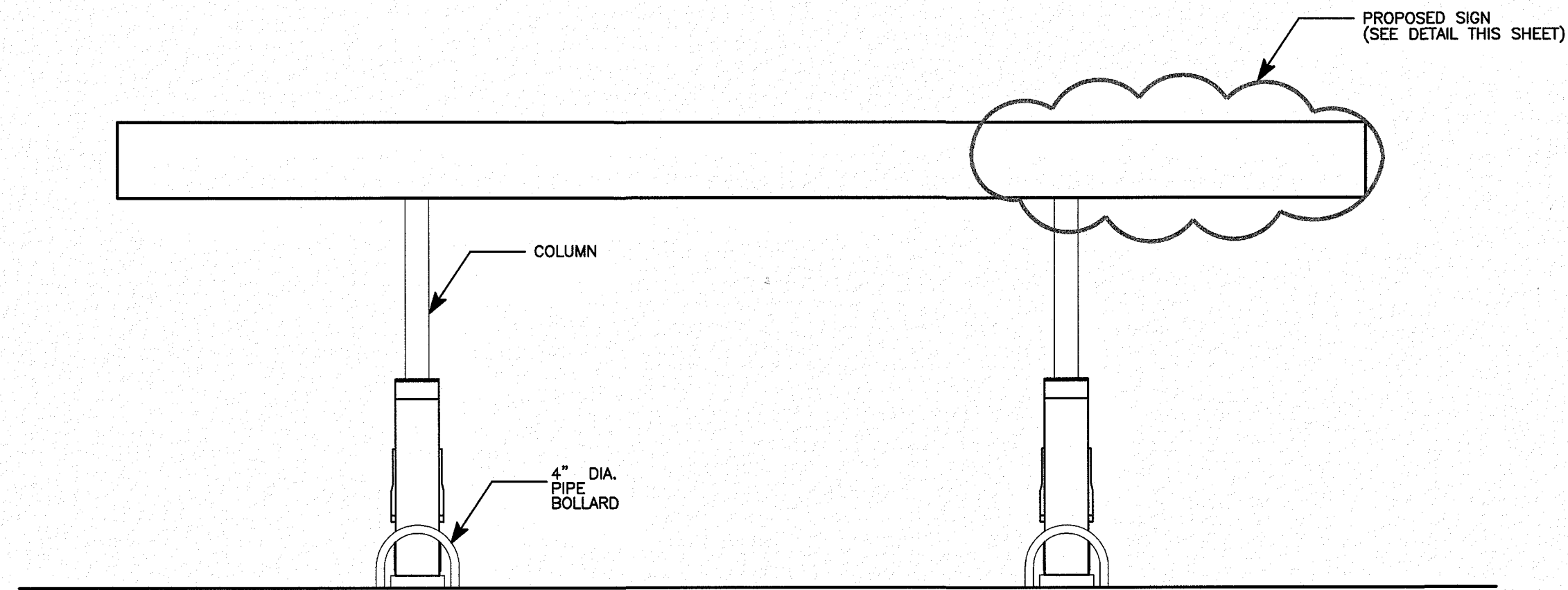
PROPOSED LEFT SIDE ELEVATION 1/4" = 1'-0" 1



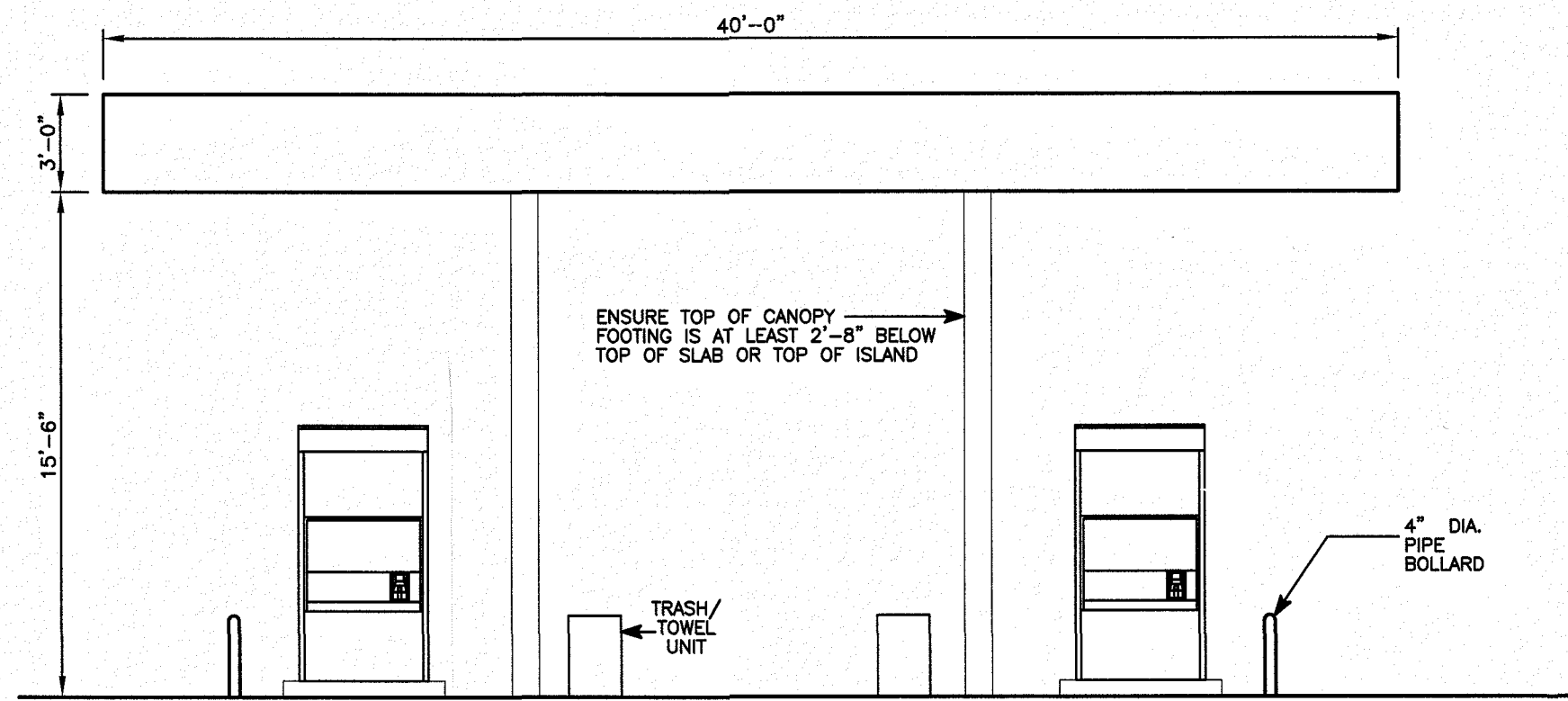
PROPOSED REAR ELEVATION 1/4" = 1'-0" 2



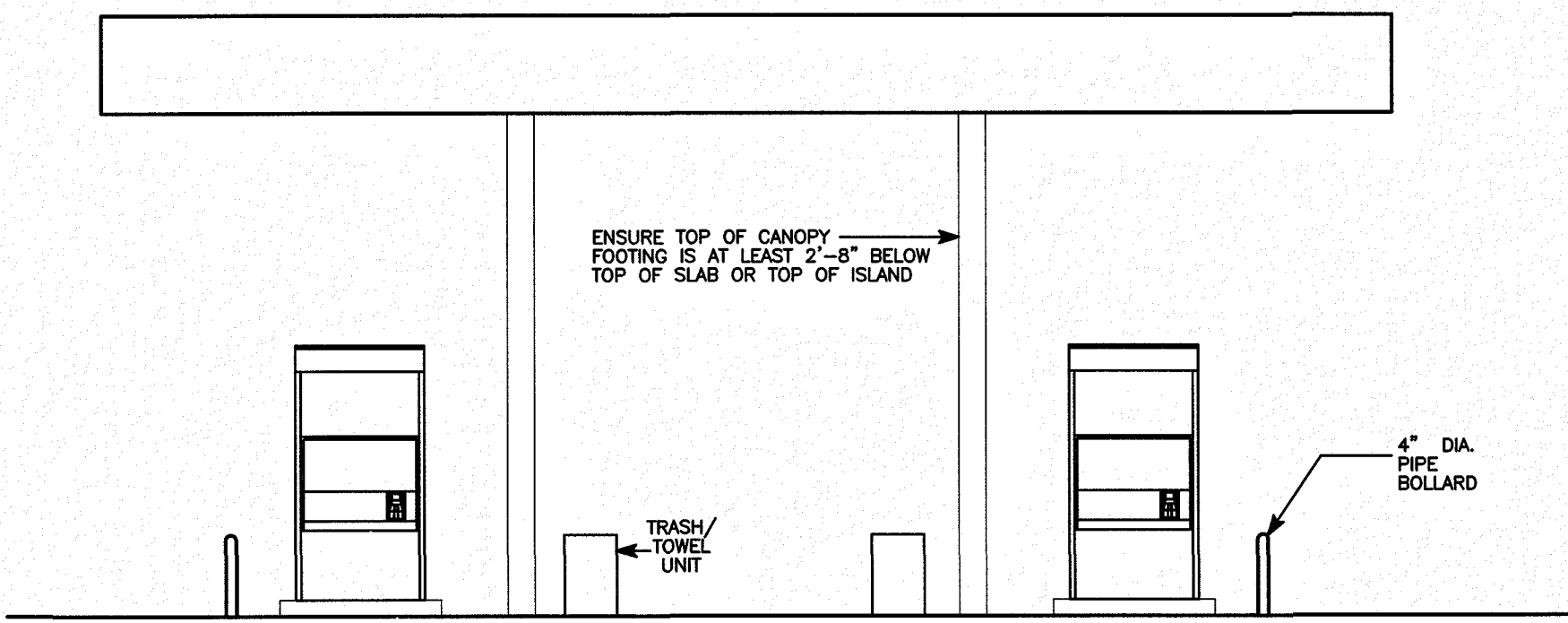
(B) RIGHT ELEVATION – AXTELL BROOK
SCALE: 3/16" = 1'-0"



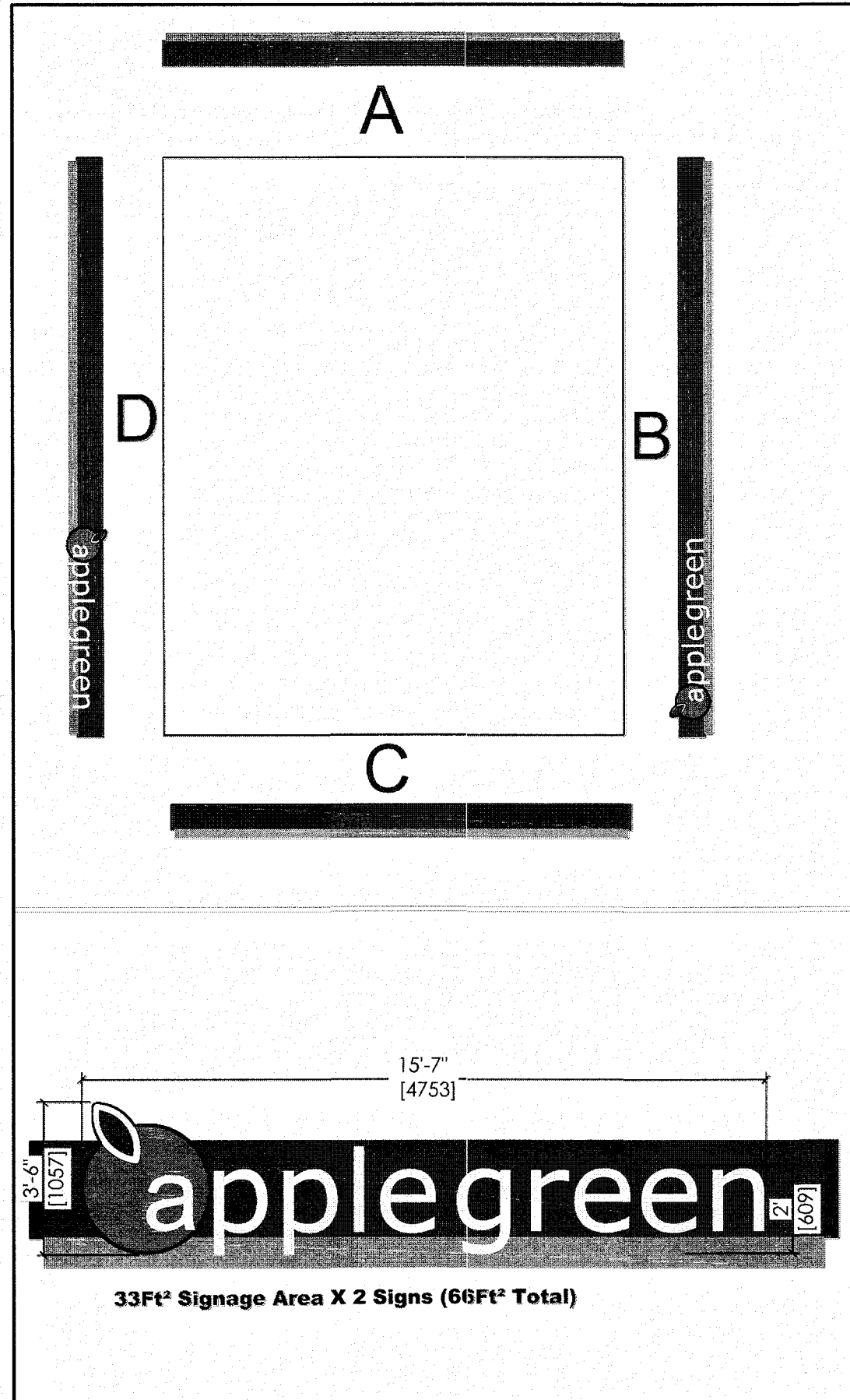
(D) LEFT ELEVATION – STORE
SCALE: 3/16" = 1'-0"




(C) FRONT ELEVATION – WORCESTER STREET
SCALE: 3/16" = 1'-0"



(A) REAR ELEVATION – WORCESTER STREET
SCALE: 3/16" = 1'-0"



NO.	DESCRIPTION	BY	DATE
REVISIONS			
RETAIL FUEL CANOPY ELEVATIONS			
ASSESSORS MAP 55 LOT 94 88 WORCESTER STREET GRAFTON, MASSACHUSETTS PREPARED FOR: PETROGAS GROUP NEW ENGLAND, INC. 168 NORTH MAIN STREET ANDOVER, MASSACHUSETTS 01810			
 44 Stiles Road, Suite One Salem, New Hampshire 03079 (603) 893-0720 ENGINEERS • PLANNERS • SURVEYORS www.mhfdesign.com			
SCALE: AS SHOWN	DATE: NOVEMBER 7, 2017	DRAWING NO. 4088CANELEV.DWG	
DRAWN BY: CCC	CHECKED BY: DRJ	PROJECT NO. 408816	SHEET NO. 1 OF 1

